

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

M421037617

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|---|-------------------------------|---------------------------|
| FACILITY: Cayman Chemical Co. | | SRN / ID: M4210 |
| LOCATION: 1180 Ellsworth Rd, ANN ARBOR | | DISTRICT: Jackson |
| CITY: ANN ARBOR | | COUNTY: WASHTENAW |
| CONTACT: Michael Lemon , Manager, Safety & Regulatory | | ACTIVITY DATE: 11/04/2016 |
| STAFF: Zachary Durham | COMPLIANCE STATUS: Compliance | SOURCE CLASS: SM OPT OUT |
| SUBJECT: Scheduled, unannounced inspection of PTI 18-16 for HAP opt-out limits and requirements of NESHAP 6V pertaining to Chemical Manufacturing area sources. | | |
| RESOLVED COMPLAINTS: | | |

Contact

Mike Lemon
Manager Safety & Regulatory
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Purpose

The purpose of the visit was to determine compliance with state and federal air pollution control rules and regulations and conditions of Permit to Install (PTI) No. 18-16. This was an unannounced, scheduled inspection. I arrived at Cayman Chemical on 11/4/16 at about 11:00am and met with Mike Lemon.

Background

Cayman Chemical received PTI 18-16 in April 2016 as a result of an increased Potential to Emit (PTE) for Hazardous Air Pollutants (HAPs) because of a facility expansion. The company now has about 70 fume hoods and employs roughly 220 staff. Operations typically consist of one day-time shift; usually 8am-4pm.

The permit identifies an opt-out limit for the facility at less than 90% of the major source thresholds for individual and aggregate HAP emissions. The facility uses a number of different solvents containing target HAP to manufacture their unique chemical compounds used in research and pharmaceutical applications. The facility does not manufacture the HAP containing solvents, however, is subject to the National Emission Standard for Hazardous Air Pollutants (NESHAP) for Chemical Manufacturing Industry area sources under 40 CFR Part 63, Subpart VVVVVV (6V). NESHAP 6V identifies subject Chemical Manufacturing Process Units (CMPU) as any that use as a feedstock, generates as byproducts, or produces as products any of the HAPs included Table 1 of the subpart, as follows:

| Type of HAP | Chemical name | CAS No. |
|----------------------|------------------------|---------|
| 1. Organic compounds | a. 1,3-butadiene | 106990 |
| | b. 1,3-dichloropropene | 542756 |
| | c. Acetaldehyde | 75070 |
| | d. Chloroform | 67663 |
| | e. Ethylene dichloride | 107062 |
| | f. Hexachlorobenzene | 118741 |
| | g. Methylene chloride | 75092 |
| | h. Quinoline | 91225 |
| 2. Metal compounds | a. Arsenic compounds | |

| | | |
|-----------|------------------------|--------|
| | b. Cadmium compounds | |
| | c. Chromium compounds | |
| | d. Lead compounds | |
| | e. Manganese compounds | |
| | f. Nickel compounds | |
| 3. Others | a. Hydrazine | 302012 |

The company also has two emergency diesel-fueled reciprocating internal combustion engines (RICE) subject to NESHAP ZZZZ, otherwise known as the RICE MACT.

Compliance Evaluation

FGFACILITY

This is the only flexible group (FG) in Permit to Install (PTI) 18-16, which identifies emission limits on individual and aggregate HAPs source-wide. Attached documents include records of monthly HAP purchased and used, solvent waste disposal, and beginning and ending monthly inventory. Additionally, waste analysis data is included to characterize the solvent waste stream and quantify the volume for calculating the mass balance.

The resulting record keeping demonstrates that the facility is in compliance with the emission limits stated in the permit. In particular, each individual HAP is limited to below 9.0 tons and aggregate HAPs below 25 tons per 12-month rolling time period. The highest single emitted HAP identified was Methylene chloride at 0.1 tons during the last 12 months. This value reflects the company capturing almost the entire waste stream of solvent and proper disposal.

NESHAP 6V

It appears that the facility is adhering to the management practices in 40 CFR 63.11495 (a)(1) through (5) for CMPU subject processes, which include: organic HAP vessels are covered when not in use and transfer of liquids containing organic HAP use bottom loading. Based on emission calculations, the total uncontrolled emissions of Table 1 organic HAP is less than 10,000 lb/yr, thus satisfying the condition in 63.11496(a)(1) requiring the company to determine the sum of actual organic HAP emissions from batch processes.

Monthly batch records and leak inspection documents were not observed at the time of this inspection.

Summary

Upon arriving at the facility I signed in at the front desk and requested to speak with a supervisor in charge of the air quality permit. Mike Lemon met me at the front desk and we proceeded to his office in the building across the parking lot, but still on the same contiguous property. We sat down and discussed what the nature of the business, what kinds of products are produced, and other components of the facility. After receiving some of this basic information, we proceeded on a walkthrough of the facility buildings and grounds to observe the various lab stations, storage spaces, and other equipment located on site.

The lab spaces look like a standard organic chemistry lab setup, with each room having several fume hoods and associate solvent waste containers. Some rooms had larger fume hoods, which were about the size of an average closet, for larger batch chromatography processes. There were also a few ethylene glycol chillers for use in larger reactions as well. Mike indicated that mostly the processes yield a small amount of product, which is further divided up for final resale. The products are used in research and pharmaceutical industries.

We did not enter the area where the active pharmaceutical ingredients (APIs) are made, though I did observe them through windows. These areas receive extra scrutiny because of the products final application in drugs regulated by the FDA.

In the waste handling room I saw a couple large reservoirs where waste solvents are stored before shipping out. Mike indicated that these are filled from the bottom in order to minimize emissions. Samples of the waste tanks

are collected before disposal for analysis.

I also observed areas where bulk materials are received and stored as well as the two sites where the emergency engines were installed.

Compliance Determination and Recommendations

I have determined that Cayman Chemical is in compliance with PTI 18-16 for opt-out limits on HAP emissions.

I recommend that the PTI be modified to include language regarding NESHAP 6V, and that the facility is aware of all compliance measures that apply.

Additionally, I recommend future inspections include review of any leak detection equipment, monthly batch data, and other requirements of NESHAP 6V that are or may become applicable to the source.

Lastly, I recommend the company review chemical inventory recordkeeping procedures to avoid potential discrepancies throughout the process. This has been communicated to Mike Lemon.

NAME Jack Dinkam

DATE 11/16/16

SUPERVISOR 