

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

N522445513

FACILITY: Michigan Paving & Materials, Alma Terminal		SRN / ID: N5224
LOCATION: 1950 WILLIAMS ST, ALMA		DISTRICT: Lansing
CITY: ALMA		COUNTY: GRATIOT
CONTACT: Jim Monroe , Division Manager		ACTIVITY DATE: 08/08/2018
STAFF: Michelle Luplow	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MINOR
SUBJECT: Scheduled, unannounced inspection to determine compliance with PTI 42-94 and 96-95.		
RESOLVED COMPLAINTS:		

Inspected by: Michelle Luplow

Personnel Present: Jim Monroe, Division Manager (james.monroe@mipmc.com)

Other pertinent personnel: Sue Hanf, Environmental Engineer (SHanf@mipmc.com)

Purpose

Conduct an unannounced, scheduled compliance inspection by determining compliance with Michigan Paving Materials Permits to Install (PTI) Nos. 42-94 for asphalt emulsion equipment and 96-95 for the addition of 6 asphalt storage tanks and 2 process tanks. This facility was last inspected May 2014.

Facility Background/Regulatory Overview

Michigan Paving Materials (MPM) is a liquid asphalt storage tank farm located approximately 1000 ft east of a small subdivision in Alma. They receive liquid asphalt cement from refineries (such as Marathon) via truck and railcar and use it to create asphalt emulsions using a variety of polymers and emulsifying agents. The asphalt emulsions are used in waterproofing basements, road repair, and other asphalt applications, including spraying of asphalt emulsion on roads and adding stones to fix potholes, etc.

J. Monroe said that liquid asphalt cement is unloaded year-round to fill the tanks, but predominantly occurs during the winter months.

Loads of the surfactants and HCl are received only during the summer months. The liquid asphalt cement is mixed with the surfactants and HCl to produce an emulsion (water-based).

J. Monroe said they operate midnight to 4 p.m. during the peak season (May – September), and during all other months they operate 8 a.m. – 4 p.m. He said appointments are scheduled outside of these hours for any trucks wanting to pick up a load of the materials. Loadouts of MPM's materials with companies they have contracts with usually occur between 3 a.m. and noon, 7 days per week (predominantly during the weekdays), but there are loadouts from non-contract companies throughout the day as well.

All tanks are heated except for the HCl tank. The emulsion and surfactant tanks are heated with hot water and the liquid asphalt cement tanks are heated with steam, both of which are generated from the boilers located onsite.

J. Monroe said the only new installation of emission units since May 2014 (last inspection) has been the installation of a new, 2 MMBtu/hr boiler to replace an 800 hp, 26 MMBtu/hr natural gas-fired boiler.

Inspection

At approximately 12:40 p.m. on August 8, 2018, I arrived at MPM and met with Jim Monroe, Division Manager of MPM-Alma Terminal. I explained to J. Monroe why I was there to conduct an inspection, since the AQD had not been out there in 4 years, and provided him with a January 2017 Permit to Install Exemptions Handbook. Odors onsite were non-detect to just barely detectable and no visible emissions were observed from the site.

Table 1 contains a listing of equipment permitted within each of the two permits, in addition to exempt equipment (other than tanks). Table 2 itemizes all tanks located onsite at the terminal with its appropriate PTI number or exemption. Note that in Table 2, many of the tanks were installed after MPM's 2 permits were issued. I have requested that MPM's Sue Hanf provide exemption demonstrations for all tanks not permitted. A follow-up activity report will be written once these determinations have been made. Tentatively, the tanks may be exempt

via Rule 284(2)(i), Rule 289(2)(b) and Rule 290.

Table 1.

Emission Unit	Permitted Equipment	PTI or exemption	Federal Regulation, if applicable
Asphalt emulsion plant	<ul style="list-style-type: none"> Emulsifier solution tank (water and emulsifier (and HCl if necessary)) HCl tank Colloid mill Asphalt emulsion product storage tank(s) 2 Asphalt storage tanks 	42-94	NA
Asphalt storage and process tanks	<ul style="list-style-type: none"> 6 storage tanks (TK-15 through TK-20) 2 process tanks (TK-21 & TK-22) 	96-95	Tanks 15-20: NSPS Subpart Kb (40 CFR 60)
“New” Cleaver Brooks, 500 hp, 2 MM Btu/hr input, natural gas-fired boiler Installed July 2018	Used to produce hot water and steam to heat the storage tanks	Rule 282(2)(b)(i)	NSPS Subpart Dc (40 CFR 60)
Existing boiler, 100 hp, <2 MMBtu/hr, natural gas-fired	Used to produce hot water and steam to heat the storage tanks	Rule 282(2)(b)(i)	NA

Table 2. Detailed listed of each tank and its associated PTI or exemption

Tank #	Volume (gal)	Type	Install Date	PTI/ Exemption
HG 1	23,000	Anionic Emulsion	2002	TBD
HG 2	23,000	Anionic Emulsion	2002	TBD
HG 3	23,000	Anionic Emulsion	2002	TBD
HG 4	23,000	Anionic Emulsion	2002	TBD
EAE 0	10,000	Anionic/Cationic Emulsion	1995	PTI 96-95
EAE 1	56,000	Cationic Emulsion	1995	PTI 42-94
EAE 2	56,000	Cationic Emulsion	1995	PTI 42-94
EAE 3	72,500	Anionic/Cationic Emulsion	1981	TBD
EAE 4	72,500	Anionic/Cationic Emulsion	1981	TBD
EAE 5	72,500	Cationic Emulsion	1981	TBD
EAE 6	72,500	Cationic Emulsion	1999	TBD
EAE 7	56,000	Anionic Emulsion	1995	PTI 42-94
EAE 8	56,000	Anionic Emulsion	1995	PTI 42-94
EAE 9	72,500	Cationic Emulsion	1999	TBD
EAE 10	72,500	Cationic Emulsion	1999	TBD
EAE 11	72,500	Cationic Emulsion	2015	TBD

EAS 1	8,800	Soap (Anionic)	1995	TBD
EAS 2	8,800	Soap (Cationic)	2003	TBD
EAS 3	8,800	Soap (Cationic)	2003	TBD
EAS 4	800	Concentrated Soap	2005	TBD
ECH 1	8,800	Latex Storage	1995	TBD
ECH 2	8,800	SA-L Agent	1995	TBD
ECH 3	8,800	C-471 Agent	1995	TBD
ECH 4	8,800	Ind 202 Agent	1995	TBD
ECH 5	6,196	HCl Acid Agent	2007	42-94/ exemption
ECH 6	7,891	Caustic Agent	1995	TBD
ECH 7	8,800	AA-89 Agent	1995	TBD
ECH 8	8,800	Bulk Surfactant Storage	2009	TBD
ECH 9 (Tank 20)	10,000	Latex Storage	1995	PTI 95-96
ECH 10	8,493	Latex Storage	2003	TBD
ELA 1	1,100	Latex	1995	TBD
DIL 1	9,800	#2 Diesel	2005	PTI 42-94
DIL 2	9,800	Bio-Diesel	2008	TBD
EAC 1	56,000	Liquid AC Storage	1995	PTI 42-94
EAC 2	56,000	Liquid AC Storage	1995	PTI 42-94
EAC 3	49,000	AC/PMAC Storage	1999	TBD
TAC 1 (Tank 16)	1,500,000	AC Storage	1995	PTI 96-95
TAC 2 Tank 15)	1,500,000	AC Storage	1994	PTI 96-95
TAC 3	500,000	AC Storage	1981	TBD
TAC 4	2,820,000	AC Storage	2002	TBD
TAC 5	2,820,000	AC Storage	2002	TBD
TAC 6	5,475,486	AC Storage	2003	TBD
TBA 1	4,000	PMAC (Batch Tank)	1995	PTI 96-95
TBA 2	4,000	PMAC (Batch Tank)	1995	PTI 96-95
TPM 1 (Tank 17)	90,000	PMAC Storage	1995	PTI -96-95
TPM 2 (Tank 18)	90,000	PMAC Storage	1995	PTI 96-95
TPM 3 (Tank 19)	90,000	PMAC Storage	1995	PTI 96-95
TPM 4	160,000	PMAC Storage	2002	TBD
TPM 5	160,000	PMAC Storage	2002	TBD

PTI No. 42-94

PTI 42-94 covers the emulsion plant at MPM. The equipment permitted under the emulsion plant includes 1 emulsifier solution tank, an HCl tank, a colloid mill, asphalt emulsion product storage tanks, and 2 liquid asphalt cement storage tanks.

Although there are emission limits for polycyclic aromatic hydrocarbons (PAHs) ($4.77E^{-2}$ mg/m³), there is no documentation that the AQD has requested stack testing for the asphalt emulsion tanks. At this time it is my professional judgment that a stack test to ensure this emission limit is being met is not necessary.

HCl for the Emulsion Process

J. Monroe explained that HCl is used to change the pH of the emulsion solution, which activates the emulsifying process. The emulsion solution is what the PTI references as "soap solution." It is the "soap solution" plus the liquid asphalt cement that creates the asphalt emulsion. Different grades of asphalt emulsion products require different chemistries to produce different types of characteristics, thus the pH and ratio of each of the components change depending on the customer's request.

J. Monroe showed me the HCl tank and its associated scrubber unit (which is not required by PTI 42-94). He explained that the tank has always been equipped with a scrubber unit. The HCl tank is double-walled and there is a spout connected to the outermost wall that MPM uses to check for leaks from the inner tank. He explained that HCl vapors are only released when the HCl tank is being filled. Vapors are pushed out through the piping at the top of the tank, where a flapper closes when pressure from filling has ceased. The vapors are then directed via piping to the 200-gallon scrubber barrel which contains limestone to neutralize the acid. J. Monroe said the limestone is replaced once per year and that they last replaced the scrubber barrel in 2005. The neutralized exhaust is then sent to a horizontal double-exhaust pipe, located approximately 15' above ground level.

MPM is required to have a written procedure for the operation of all the control measures required in the permit for HCl transfer. The control measures include the following, and should be implemented:

- Vapor-tight collection line should be connected to the delivery vessel before any HCl is transferred
- Vapor-tight collection line shall close upon disconnection to prevent release of HCl vapor
- Hatch and other openings on the delivery vessel shall be closed and vapor-tight to prevent emission of displaced HCl vapor during transfer operations, except under emergency conditions
- The liquid transfer line shall be equipped with a device, or a procedure shall be implemented, to prevent liquid drainage from the line when it is disconnected and not in use

J. Monroe provided me with their written instructions, start to finish, of unloading the HCl truck and loading HCl into MPM's tank (attached). It does not address the requirement to ensure the hatches and other openings on the delivery vessel are vapor-tight during transfer operations. J. Monroe stated that they are not responsible for the delivery truck portion of this requirement. I will work with MPM on compliance with this requirement, by updating their procedure to include that staff request the delivery truck driver to check the hatch and other openings to ensure they are vapor-tight. I will also request that the procedure be reviewed since this is a March 2012 version and the contacts/company name have changed since this version. No HCl deliveries were occurring during the inspection to verify these steps were taken.

During preparation of the emulsion, the permit requires that the surfactant (emulsifier) and HCl be added to the water with a submerged inlet. J. Monroe explained that the surfactant and HCl are pumped into an enclosed tank containing water, through an inlet that enters the tank at the bottom. This process meets the permit requirement.

The 2 asphalt storage tanks permitted under PTI 42-94 are required to have stacks that discharge emissions unobstructed vertically upwards and be at least 24 feet off the ground. As noted during the previous inspection and this inspection, these 2 tanks have what J. Monroe calls "conservation vents" although do not appear to be constructed in the same way that true conservation vents are constructed within the industry (operate with pressure release valves). The vents on the 2 asphalt storage tanks condense the vapor emissions. These are the only "stacks" on the tank, and they all are equipped with raincaps. I explained to J. Monroe that these vents, that although these may be a better way of recovering product and reducing the amount of contaminant that enters the air than unobstructed vertically upwards stacks, they currently do not meet the permit requirements. I informed J. Monroe and S. Hanf of the need to get the permit modified to reflect what is currently installed at the facility, and that it is essential for ensuring compliance with the permit requirements. Of note, is that the 2 liquid asphalt storage tanks that contain the same grade of asphalt as the 2 permitted under 42-94, have no stack requirements. I will request that MPM apply for a permit modification to address the tank "stacks" in addition to any of the tanks that will need to be included in their current PTI's. I will also recommend that they request the new, modified permit to encapsulate requirements from PTI's 42-94, 96-95 and any new requirements, within one new PTI.

PTI No. 96-95

This PTI covers Tanks 15 and 16 (two 1.5 million gallon liquid asphalt cement tanks); Tank 17 (a 90,000 gallon latex asphalt tank); Tanks 18 & 19 (polymerized asphalt tanks at 90,000 gallons each); Tank 20 (10,000 gallon liquid latex tank); tanks 21 and 22 (two 4,000-gallon polymerized asphalt tanks).

Although there are emission limits for polycyclic aromatic hydrocarbons (PAHs) ($4.77E^{-2}$ mg/m³), based on a file

review, the AQD has not requested stack testing for the permitted asphalt and process tanks, and it is my professional judgment that stack testing is not required at this time.

Storage tanks for asphalt cement (tanks 15 & 16) and PMAC (polymerized asphalt – tanks 17-19) are required to comply with NSPS Subparts A and Kb. These regulations require that a record of the tank dimensions and an analysis showing the capacity for each be kept on file for the life of the tank. J. Monroe provided me with a list of all tanks with their associated dimensions and their capacities, including the newest installation in 2015 (see attached), meeting the requirements of NSPS Subpart Kb and PTI 96-95.

Exempt Boilers

MPM maintains two natural gas-fired boilers that J. Monroe said were installed approximately in 1995 and in 2018 and are used to make steam to heat the tanks. The 2 MMBtu/hr boiler installed in 2018 is subject to the NSPS Subpart Dc for small industrial/commercial/institutional steam generating units. The NSPS requires that MPM maintain records of the amount and type of fuel burned, and they have the option to keep records on a daily or monthly basis. MPM currently keeps natural gas usage records.

Odors/Odor Survey Discussion

J. Monroe said that he has received no odor complaints since 2014, but suspects that the odors detected in 2014 by the complainant originated from Padnos, a metal scrap recycling facility. The last time the AQD received odor complaints from the neighborhood less than ¼ mile west of the facility was also in 2014.

Prior to conducting the inspection, I conducted a brief odor survey of the area within a 1-mile radius of the facility, from 11:00 a.m. – 11:08 a.m. During that time, according to weatherunderground.com, winds were out of the WNW to NW at 3-5 mph, sky conditions were overcast. Southeast of the facility, on Jerome Road, I detected level 2 (distinct and definite) asphaltic odors that are only attributed to liquid asphalt cement, and other asphaltic processes. It is my professional judgment that the odors I detected were not associated with Padnos, but only with the processes occurring at MPM. Odors during the time of the survey were only detected on Jerome Road for the 5 minutes I stayed at that location. Odors fluctuated between a 1 and a 2 and would not be considered objectionable. I detected no other odors during the survey. See attached map for route of odor survey.

Safety Precautions: all onsite are required to wear steel-toed shoes, safety glasses, a high visibility vest, and a hard hat.

Compliance Statement: MPM is currently in compliance with PTI's 42-94 and 96-95.

NAME M. Monroe

DATE 8/22/18

SUPERVISOR B. M.

