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

B735733907

FACILITY: TEMPERFORM LLC		**SRN / ID:** B7357
LOCATION: 25425 TRANS X, NOVI		**DISTRICT:** Southeast Michigan
CITY: NOVI		**COUNTY:** OAKLAND
CONTACT: Bruce Boettger , President		**ACTIVITY DATE:** 03/21/2016
STAFF: Samuel Liveson	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** SM OPT OUT
SUBJECT: Scheduled inspection of a synthetic minor source.		
RESOLVED COMPLAINTS:		

On Monday, March 21, 2016, I conducted a scheduled, level 2 inspection of Temperform, LLC (Temperform), located at 25425 Trans X Drive in Novi, Michigan. MDEQ-AQD staff Tyler Salamasick accompanied me on the inspection. 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 Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, and the conditions of Permit to Install (PTI) No. 60-00B.

MDEQ-AQD arrived on site around 10:00 am. We observed the stacks of the two scrubbers on site for several minutes from a parking area northwest of the facility. No opacity was observed. We met with Mr. Bruce Boettger, President, Mr. Dan Bickersteth, Lead Director, and with Mr. Nick Riccobono, Manufacturing and Quality Director. Mr. Boettger provided a site walkthrough and Mr. Bickersteth and Mr. Riccobono provided facility records. We provided our contact information and a copy of the pamphlet "DEQ Environmental Inspections: Rights and Responsibilities."

I originally attempted to conduct an inspection at Temperform on Thursday, March 18th, but agreed to come back another time because Mr. Bickersteth, the main environmental contact, was off site.

Opening Meeting

Temperform is a multi-alloy foundry. It specializes in manufacturing castings for the cement industry, mining industry, and aircraft industry. The company has approximately 40 employees, and operates four ten hour shifts from 4:00 am to 12:00 pm Monday through Thursday, and Fridays if needed.

A description of the facility process is that wood patterns are used to create a mold comprised of sand, binder/resin, and catalyst. This mold requires no heating before molten ferrous metals are poured into it and then allowed to cool. The sand cast is separated, the sand is recycled, and the final ferrous mold is cleaned and finished before being shipped out.

The facility mixes scrap ferrous metals with alloys. According to the facility, metals with mercury are not used.

Facility Walk-Through

Sand Preparation/Molding

Two lines are used to manually convey parts to set a sand/binder/catalyst mold from wooden patterns. Mold release is applied by brush. This part of the process is in the same room as

melting so that emissions travel through FGSCRUBBERS1/2 before being vented to ambient air.

FGSCRUBBERS1/2 – Melting, Mold Pouring, and Cooling
Both scrubbers were in operation during the inspection. The scrubbers control emissions from the melting, mold pouring, and cooling operations. Melting of ferrous metals occurs in one of five induction furnaces on site; two have a capacity of 3000 pounds (lbs) each, two have a capacity of 2200 lbs each, and one has a capacity of 500 pounds. The smaller induction furnace was installed before 2007 and is part of FGSCRUBBER1/2. The induction furnace appears to be exempt from obtaining a Permit to Install per R 285(c)(iii).

EUSCRUBBER1 and EUSCRUBBER2 are each equipped with a separate liquid flow monitoring device to maintain flow rates per PTI 60-00B Special Condition (S.C.) 4.3. The gauges provide instantaneous flow in gallons per minute (gpm). According to Mr. Boettger, 100% of water is recirculated, except for water added to make up for evaporation losses. Both scrubbers were operating during the inspection. The scrubbers appear to operate according to manufacturer's specifications per S.C. 4.3, as shown below:

Scrubber	Manufacturer-Recommended Flow Rate	Observed Instantaneous Flow Rate	In Range?
EUSCRUBBER1	200-475 gpm	353	Yes
EUSCRUBBER2	200-475 gpm	358	Yes

Mr. Boettger explained that once a year, scrubbers are shut down for maintenance. As preventative maintenance, the facility evaluated scrubber metal thickness and applied epoxy in August of 2014 for EUSCRUBBER1, and August of 2015 for EUSCRUBBER2.

Both scrubber stacks appear to vent unobstructed and with diameters of less than 48 inches per S.C. 4.4a and 4.4b. No opacity was observed.

According to MDEQ-AQD records, FGSCRUBBERS1/2 were stack tested on January 22, 2002 to demonstrate compliance with S.C. 4.1a. The combined VOC emissions rate from FGSCRUBBERS1/2 was determined to be 5.29 pounds per hour (pph), below the facility limit of 25.0 pph.

EUBAGHOUSE1
This baghouse is used when loading and unloading storage bins for new (not reclaimed) sand. The baghouse is equipped with a static pressure drop monitoring device per S.C. 1.3. The baghouse was not operating during the inspection. As provided in facility records, in 2015, 74 tons of sand were new, while 2834.5 tons were reclaimed.

A reusable bagged container collects fine particulate under the baghouse. According to Mr. Boettger, the particulate is sent to a landfill as non-hazardous waste. Bags are generally pulsed at the beginning and end of the day, and replaced as needed. The stack appears to be unobstructed and to have a diameter less than 10 inches per S.C. 1.4.

EUBAGHOUSE2
This baghouse is used with iron cutting blast booths, as well as abrasive saws, stand grinders, and a welding area. We observed facility staff grinding and welding equipment. The

baghouse was operating during the inspection, and was equipped with a static pressure gauge. The gauge read 2.8 inches (in) water. This is within the manufacturer-recommended range of 2 in – 8 in water per S.C. 2.3. Recommended static pressure ranges are provided in the facility Malfunction Abatement Plan (MAP). No opacity was observed through the stack so that the facility appears to operate the stack properly per S.C. 2.2. The stack is unobstructed and appears to have a diameter less than 24 inches per S.C. 2.4.

EUBAGHOUSE3
As discussed earlier, most sand used on site is reclaimed. EUBAGHOUSE3 is associated with a natural-gas fired thermal sand reclaimer on site.

A static pressure gage is present on the baghouse per S.C. 3.3. The reclaimer was not operating during the inspection. According to Mr. Boettger, the reclaimer operates about three days a week. Fine particulate is collected in a bag below the baghouse to be sent to a landfill as nonhazardous waste.

Temperform performed stack tests on EUBAGHOUSE1 and EUBAGHOUSE2 on August 7-8, 2001. Results provided an emission rate less than 0.01 lbs particulate / 1000 lbs of exhaust gases. According to MDEQ-AQD Operational Memorandum 14, particulate emissions of 0.01 lbs particulate matter / 1000 lbs exhaust gases can be practically evaluated as an opacity less than 5%.

Miscellaneous Equipment

Emergency Spark-Ignition RICE
Temperform installed a natural gas fired emergency generator so they can empty molten metals from the pour station during a power outage. According to Mr. Boettger, the engine was installed several years ago and was manufactured around the 80's. The engine has not been used outside of monthly maintenance checks. Engine emissions travel through FGSCRUBBERS1/2 before being emitted to ambient air. I provided information about applicable regulations 40 CFR Part 63 Subpart ZZZZ and 40 CFR Part 60 Subpart JJJJ. Compliance with these regulations was not evaluated during this inspection. The engine appears to be exempt from Permit to Install requirements per R 285(g).

According to Mr. Boettger, there are no cold-cleaners or boilers on site.

Recordkeeping
Mr. Bickersteth provided facility records per S.C. 5.1 of iron poured per month from January of 2015 through February of 2016 per S.C. 5.2, as well as mold and core usage for that same time period.

The highest rolling total of mold and core usage is 2950.75 tons in December of 2015. This is below the facility limit of 18,913 tons per S.C. 4.2.

The facility emitted 275.4 lbs of VOC in 2015, using the emission factor of 0.28 lbs of VOC per ton of iron poured per S.C. 5.2. This is below the facility limit of 36.14 tons per S.C. 4.1c.

The facility provided calculations demonstrating that they emit less than 0.01 lbs particulate matter / 1000 lbs of exhaust gases using MAERS emission factors per S.C. 1.1a, 2.1a, 3.1a. The facility similarly provided calculations demonstrating that they emit less than their PM pounds per hour emission limit per S.C. 1.1b, 2.1b, 3.1b, and VOC pounds per hour emission limit per S.C. 3.1c.

Mr. Bickersteth provided the facility mold release agent material safety datasheet (MSDS). According to facility potential to emit (PTE) calculations, the facility PTE of mold preparation spray is 23.4 tons per year (tpy) VOCs emitted out of EUSCRUBBER1.

According to the facility malfunction abatement plan (MAP), pressure drops across all control equipment are read daily, when operating. Mr. Riccobono provided daily inspection reports for March, which include manometer readings from control devices. The facility appears to abide by the malfunction abatement plan per S.C. 5.3.

40 CFR Part 63 Subpart ZZZZZ

The facility is subject to 40 CFR Part 63 Subpart ZZZZZ: NESHAP for Iron and Steel Foundry Area Sources. MDEQ-AQD does not have delegated authority to evaluate compliance with this NESHAP. The facility is a small foundry and submits semi-annual compliance reports.

Facility Synthetic Minor History

On December 19, 1995, AQD staff determined that the company potential to emit hazardous air pollutants (HAPs) exceeded major source thresholds. The company decided to opt out of the Title V requirements. PTI No. 60-00 was issued as a synthetic minor permit.

According to the facility PTI 60-00B application, the facility PTE is as follows:

Regulated Pollutant	Potential Emissions (tpy)
CO	5.86
NOx	1.69
VOCs	37.15
SO_2	3.26
Particulate	22.4
Aggregate HAPs	10.40

The highest individual HAP emission PTE appears to be 2.3 tpy of benzene. Original facility applications and emissions calculations for voided PTIs No. 60-00 and 60-00A are included in an attached CD, and are available in the permit file.

Compliance

Based on the AQD inspection and records review, it appears that Temperform is in compliance with the federal Clean Air Act, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, and the conditions of PTI No. 60-00B. Compliance with requirements for the emergency engine was not evaluated during this inspection.

NAME [signature] DATE 4/5/2016 SUPERVISOR CTE