

# TEMPERFORM

September 30, 2022

Mr. Eric Grinstern,  
**Environmental Quality Specialist**  
**Air Quality Division**  
**State of Michigan Department of Environment, Great Lakes, and Energy**  
Grand Rapids District Office  
State office Building  
350 Ottawa Avenue, NW  
Unit 10  
Grand Rapids, MI 49503-2341

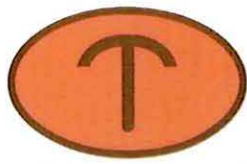


**SRN: B7357, Oakland County**  
**Violation Notice: September 15, 2022**

Dear Mr. Eric Grinstern,  
On August 4, 2022, the Department of Environment, Great Lakes, and Energy – Air Quality Division conducted an inspection of Temperform, LLC located at 25425 Trans-X Road, Novi, Michigan. Temperform received a Notice of Violation (NOV) resulting from that inspection on September 20, 2022. The NOV cites five (5) alleged Rule/Permit Condition Violations.

Temperform believes three (3) of the observations or statements are inaccurate or do not constitute violations of the applicable legal requirements cited and provides the following factual information to explain its position. For the two violations that have merit, we will propose corrective actions to limit the possibility of recurrence in the future.

The first violation listed which Temperform does not believe is a violation of legal requirements pertains to EUBAGHOUSE3. The condition violated is identified as relative to PTI No. 60-00C, Special Condition IV.4, Rule 910 (R 336.1910). In PTI No. 60-00C, EUBAGHOUSE3 section IV.4 reads: The permittee shall not process sand in EUBAGHOUSE3 unless a minimum temperature of 1350°F is maintained for the afterburner as per the manufacturer. (R336.1225, R336.1702, R336.1910). The



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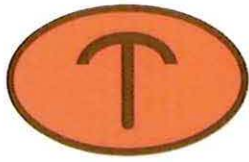
equipment manufacturer for the thermal reclamation system is a Canadian firm, and the afterburner was commissioned on April 19th, 2021, following a long delay due to the closed border between the USA and Canada. After April 19th, 2021, the thermal reclamation unit was interlocked so that the unit will shut down if the afterburner temperature is not maintained within +/- 10°F of the nominal setpoint of 1350°F. The PLC data provided to EGLE on August 2, 2022, covering all activity between October 2021 and June 2022 verifies that the average afterburner temperature was 1350°F at all times while sand was being processed through the thermal reclamation unit.

The third violation listed which Temperform does not believe is a violation of legal requirements pertains to FGSCRUBBERS1/2. The condition violated is identified as relative to PTI No. 60-00C, Special Condition IV.1, Rule 910 (R 336.1910). In PTI No. 60-00C, FGSCRUBBERS1/2 section IV.1 reads: The scrubbers that serve FGSCRUBBERS1/2 shall be equipped with liquid flow monitoring devices to maintain and record the flow rates of effluent, make-up, and recirculation according to its manufacturer's specifications, on an hourly basis. (R 336.1205, R 336.1224, R 336.1331, R 336.1702). The make-up water for FGSCRUBBERS1/2 is controlled by a mechanical float switch and an electromagnetically operated valve. When the mechanical float switch is in the FULL position the valve is not energized and no water will flow into the tank. When the float switch drops into the NOT FULL position the valve is energized and water is allowed to flow into the tank until the float switch reaches the FULL position. There is no manufacturer specified flow rate specified for this operation.

Regarding effluent, this system does not produce wastewater that has to be discarded or blown down. As water is pumped through the scrubbers, some fraction is picked up by the air flowing through the packed bed media and is then captured by KIMRE mist eliminator pads prior to the process air travelling through the fans. The captured water drains from the mist eliminator pads back into the process tank. Any residual moisture evaporates. The evaporation process is the main driver for the reduction of water volume in the system.

The system water is periodically pumped out and recycled to allow for the tanks to be cleaned. This process requires a request for permission and pre-release testing before permission can be granted to pump out the tanks. There is no manufacturer specified flowrate or intent for process effluent. The process flow rate of water through the system is governed by the specific parameters of the pumps that deliver water to the





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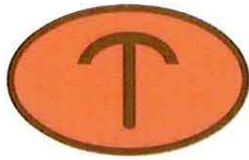
spray nozzles in the top of each scrubber tank. The spray nozzles distribute the water over the packing media in the presence of process air from the manufacturing facility. The packing media scavenges organics from the process air and the water rinses the deposited organics into the process water tanks for separation by settling/clarification and partial removal by flow through packed bed activated charcoal filtration.

The process water flow is monitored by two George Fischer GF+ flow meters, one per scrubber. The flow meters are placed in the riser pipes between the pumps and the distribution nozzles in the tanks. The nominal GPM flowrate as indicated by the manufacturer of the equipment is 400 GPM. This number naturally fluctuates up and down over time and is not controllable other than by the full-load capacity of the pump motor, the condition of the impellers and casing of the pumps, and the backpressure created by the nozzles that distribute the water over the packing media. There are no manufacturer specified high or low limits for water flow through the process. The George Fischer GF+ flow meters that are currently installed do not have the ability to transmit or store process information. They simply display flow in real time.

To meet the requirements of PTO No. 60-00C, the George Fischer GF+ flow meters will be replaced with IFM Efactor flow meters, part number SI5004. The IFM flowmeters have 4-20mA output channels that will be utilized to transmit operating information to a PLC, where the flow data will be recorded and time coded for reference and compliance purposes. This new flow meter monitoring system will be operational by September 26, 2022 (complete at time of submission 10/6/2022).

The fourth violation listed which Temperform does not believe is a violation of legal requirements pertains to FGSCRUBBERS1/2. The condition violated is identified as relative to PTI No. 60-00C, Special Condition IV.2, Rule 910 (R 336.1910). In PTI No. 60-00C, FGSCRUBBERS1/2 section IV.2 reads: The permittee shall install, calibrate, maintain, and operate in a satisfactory manner, one of more devices to monitor and record the pressure drop across the scrubbers on a continuous basis. (R 336.1205, R 336.1224, R 336.1225, R 336.1331, R 336.1702, R336.1910). The scrubbers do not have a separating membrane between a clean or suction side and a dirty or process side.

In a baghouse or cartridge dust collector the health of the filtering media can be monitored by measuring the differential pressure ( $\Delta P$ ) between the dirty and clean side of the filter media. A very low  $\Delta P$  indicates a rip or tear in the media that is allowing



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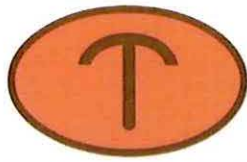
dirty air to short circuit the barrier and exhaust through the fan and stack. A very high  $\Delta P$  indicates that the filter media is overly saturated or blinded with particulate and requires blow down or replacement. In the case of the scrubbers there is no membrane between exhaust air and process air. The exhaust air passes through an open chamber filled with plastic packing media and an open water misting system for the purposes of removing organics from the process air. There is no filter or membrane inside the scrubbers across which to measure a pressure drop.

To address the permit conditions a differential pressure monitoring system has been installed in both scrubber systems to measure the pressure drop between each scrubber and the ambient condition inside the foundry. A second pressure monitoring system is installed to measure  $\Delta P$  across the mist elimination pads to indicate when the pads should be removed for cleaning. The resultant pressure readings are monitored and recorded by PLC along with the flow rate data for both tanks and will be available for review on demand. The image below shows the HMI for the scrubber system with GPM and differential pressure readings for reference (complete at time of submission 10/6/2022).



The second violation listed refers to FGSCRUBBERS1/2. The condition violated is identified as relative to PTI No. 60-00C, Special Condition III.2, Rule 910 (R 336.1910). In PTI No. 60-00C, FGSCRUBBERS1/2 section III.2 reads: The permittee shall not operate any





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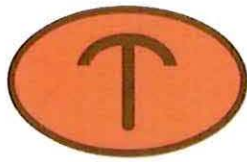
unit in FGSCRUBBERS1/2 unless both scrubbers are installed and operating properly, including the liquid phase carbon adsorption system or equivalent system as approved by the AQD District Supervisor. (R 336.1205, R 336.1225, R 336.1331, R 336.1702). Given that the scrubbers are used in this installation as general building exhaust units and not source specific collection units there is not a practical way to prevent mold, melt, pour, and mold cooling from occurring if the scrubbers aren't running. Further, there is no system to indicate to operating personnel that the system isn't running should it not be operational during working hours.

To remedy this issue and indicate to process operators when the system is malfunctioning an alarm system will be installed to indicate with lights and horns. Mold making, melt, pour, and mold cooling should cease while the Malfunction Abatement Plan is activated. Additional training will be provided to operators upon installation of this alarm system. The alarm system will be installed, and the operator training will have occurred by the end of October 2022.

The fifth violation listed refers to FGMACTZZZZZ Steel Foundry. The condition violated is identified as relative to 40 CFR Part 63, Subpart ZZZZZ, Iron and Steel Foundries Area Sources NESHAP (63.10899(c)). Temperform did not submit semiannual compliance reports for the time period of January 1, 2020, through July 1, 2022. Temperform has never been out of compliance with NESHAP requirements, but the semiannual reports were not submitted in a timely manner. When the issue was brought to the attention of the Site Manager at Temperform the oversight was immediately corrected, and the reports were submitted. Going forward two automatic reminders will be set in advance of the reporting date, one at one month out and one at ten days out to provide visibility on the upcoming date of compliance.

Temperform is small foundry. Per NESHAP guidelines an existing foundry is a small foundry when it has capacity to produce less than 20,000 tons of metal per year. NESHAP classifies a foundry as an area source that has the potential to produce less than 25 tons per year of a combination of HAPS or 10 tons per year of any single HAP.

In addition to NESHAP emissions limitations for small foundries and area sources, Temperform is also limited by its existing PIT to process no more than 18,000 tons per year of sand. With an average sand to metal ratio of 4:1, the maximum sand processing limitation further limits maximum metal production to no more than 4,500 tons per



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year. In practice, Temperform has not produced more than 2,000 tons of metal in a single year.

Temperform follows NESHAP small foundry guidelines for metallic scrap, mercury, and methanol management.

- Temperform does not purchase any post-consumer automotive scrap, turnings, lead-containing components, mercury containing components, plastic, or non-water liquid
- Temperform uses a phenolic urethane cold box binder system that does not contain any methanol
- Notification of compliance and metallic scrap management documentation are recorded and available

Per NESHAP, only large foundries are required to perform initial performance testing to show compliance with particulate matter or total metal HAP emission limits from metal melting furnaces (Performance Testing 63.10897).

As a small foundry, Temperform does not agree with the request to complete the PTE demonstration or to complete air emissions performance testing on each of the wet scrubbers that control emissions from FGSCRUBBERS1/2. There is substantial cost required to complete this testing and there is no regulatory driver to support the request or justify the additional expense. By EPA definition as a small foundry and small area source Temperform does not have the potential to produce enough organics, particulate matter, or HAPs to approach a threshold shift between small and large foundry or area source and major source.

Respectfully,

Katherine Jungwirth  
Blake Albritton  
Tierney Grutza  
Gloria Webber

Temperform LLC  
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