

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

N325556418

<b>FACILITY:</b> MAY MEMORIAL		<b>SRN / ID:</b> N3255
<b>LOCATION:</b> 1734 MICHIGAN RD, PORT HURON		<b>DISTRICT:</b> Warren
<b>CITY:</b> PORT HURON		<b>COUNTY:</b> SAINT CLAIR
<b>CONTACT:</b> Greg May , President		<b>ACTIVITY DATE:</b> 12/15/2020
<b>STAFF:</b> Adam Bogнар	<b>COMPLIANCE STATUS:</b> Compliance	<b>SOURCE CLASS:</b> MINOR
<b>SUBJECT:</b> Scheduled Inspection		
<b>RESOLVED COMPLAINTS:</b>		

On December 15, 2020, Michigan Department of Environment, Great Lakes, and Energy– Air Quality Division (EGLE-AQD) Staff, I, Adam Bogнар conducted a scheduled inspection of May Memorial Crematory (the “facility”), located at 1734 Michigan Road, Port Huron, MI 48060. The purpose of this inspection was to determine the facility’s compliance status with the Federal Clean Air Act; Article II, Part 55, Air Pollution Control of Natural Resources and Environmental Protection Act, 1994 Public Act 451; Michigan Department of Environment, Great Lakes, and Energy (EGLE-AQD) rules; and Permit to Install (PTI) Nos. 123-08 and 986-91.

I arrived at the facility at around 11 am. I met with Mr. Ron Armstead, Manager (gmay@maywilbert.comcastbiz.net, Office: 586-791-3486). I identified myself and stated the purpose of the inspection. Mr. Armstead is normally the only Crematory employee. The furnaces normally operate once in the morning from approximately 8 am to 1 pm and again in the evening from approximately 2 pm to 6 pm. Operating time depends on body size and the start time of cremation. The crematory is owned by Mr. Greg Mays. Mr. Armstead gave me a tour of the facility.

May Memorial Crematory operates two crematory furnaces. Both are used to cremate human remains (no animals). The first crematory furnace, made by Industrial Equipment & Engineering CO., was installed in 1991. The second crematory furnace, manufactured by Matthew’s Cremation, was installed in 2008. Both furnaces operate in a very similar manner. The main difference is that the older furnace does not have a chart recorder (and is not required to have one). In 1996, Industrial Equipment and Engineering Company became a part of Matthew’s Cremation. Both furnaces are serviced by Matthew’s Cremation.

Prior to cremation, remains are kept in cardboard boxes stored either near the furnaces or in a refrigerator if needed. The cardboard boxes are inserted into the furnace along with the remains. After the cremation, the cremated remains (cremains) are transferred to a grinding station where they are cooled, screened for metals using a magnet, ground to a fine dust, then boxed into an urn/box for the family to pick up.

**PTI No. 123-08**

PTI No. 123-08 was issued on April 30, 2008 for a Matthew’s Cremation Division Power Pak III natural gas fired crematory incinerator. Before the remains are charged to the furnace, the secondary combustion chamber is pre-heated until it reaches 1650° F. Remains are charged into the primary chamber of the furnace through a steel door at the front of the furnace. As the cremation proceeds, the combustion gases travel out of the primary combustion chamber into the secondary combustion chamber where they are further combusted. The goal of the secondary combustion chamber is to ensure complete combustion. Incomplete combustion of remains can lead to fallout, odors, hazardous emissions, and heavy smoke; all of which can be upsetting to neighbors of the facility and/or relatives of the deceased.

This furnace is also equipped with an opacity alarm. This alarm is calibrated each time Matthew’s cremations comes to service the incinerator (every 1-2 years). If the opacity gets too high, the primary burner is shut off while the secondary burner keeps running. This allows the secondary combustion chamber to “catch up”. Mr. Armstead was unsure what the trigger level is for the opacity meter.

Special Condition 1.1: Limits Particulate Matter (PM) emissions to 0.20 lbs/1000 lbs of exhaust gases, corrected to 50% excess air. Compliance with this condition is determined by monitoring the opacity of the furnace exhaust. I did not notice any opacity coming from the furnace during this inspection. An opacity sensor is present on each machine that will adjust the combustion parameters to mitigate excess opacity.

Special Condition 1.2: States that the permittee shall only burn pathological wastes in the incinerator. Only pathological wastes are burned. Human remains and the boxes (wood/cardboard) used to transport the remains are the only waste burned at this facility. No animal remains are burned at this facility.

Special Condition 1.3: States that the permittee shall not combust waste in the incinerator unless a minimum temperature of 1400 ° F and a minimum retention time of 1.0 seconds in the secondary combustion chamber are maintained.

The furnace was operating during this inspection. The cremation was nearly finished. The secondary combustion chamber was at 1650°F. Facility appears to comply with this condition.

Special Condition 1.4: States that the incinerator shall be installed, maintained, and operated in a satisfactory manner. Based on the records I reviewed and this inspection, the facility appears to comply with this condition.

A trained operator, Mr. Armstead, is responsible for doing basic maintenance checks on the incinerator such as cleaning spark plugs and greasing bearings. Mr. Armstead explained that they do not accept oversized bodies at this facility. Anything more than 500 lbs is rejected.

A copy of the manufacturer's manual is available in a cabinet near the furnaces.

A service technician from Matthew's Cremation comes out annually (or at least bi-annually) to inspect and service the furnaces.

Special Condition 1.5: States that the permittee shall install, calibrate, and maintain in a satisfactory manner a device to monitor and record the temperature in the secondary combustion chamber on a continuous basis. This furnace is equipped with a thermocouple that reports secondary combustion chamber temperature data to a circular chart recorder. The thermocouple is inspected each time Matthew's Cremation comes to the site.

Special Condition 1.6, 1.7: Specifies recordkeeping requirements for the incinerator. The facility must keep records of the time, description, and weight of waste combusted in the incinerator. Additionally, the facility must keep continuous temperature data for the secondary combustion chamber during each of these combustions.

These records are maintained. Mr. Armstead showed me the binder containing these records while I was on-site. These records are not kept digitally. The facility maintains hand-written logs of each cremation. I thoroughly reviewed records from December 2019 and November 2020 (Months were picked at random). The facility notes the name of the deceased, the weight of the body, and the start and end time of each cremation. I briefly looked through the rest of the binder and did not notice any recordkeeping deficiencies.

The circular chart recorder readings were also made available to me during my inspection. I thoroughly reviewed records from December 2019 and November 2020. Based on these charts it appears that the secondary combustion chamber temperature readings are regularly kept above 1600°F. I did not notice any instance where the combustion chamber temperature fell below 1600°F during combustion in the records I reviewed. The temperature appeared to be consistent during combustion with no large fluctuations. Occasionally, the temperature spikes up to 1700°F or 1800°F in the first hour of combustion before stabilizing at 1600°F.

Special Condition 1.9: Specifies stack dimension requirements. I did not verify stack dimensions during this inspection. Both furnace stacks appear to be exhausted unobstructed vertically upwards to the ambient air.

#### **Permit to Install No. 986-91**

PTI No. 986-91 was issued on September 14, 1991 for an Industrial Equipment & Engineering Company Cremator, Model IE43-PPII (Power Pak II) natural gas fired crematory incinerator. This cremation furnace operates in essentially the same way as the newer cremation furnace. The main difference is that this cremator is not equipped with a circular chart recorder. Secondary combustion chamber temperature data is not recorded on this machine.

Special Condition 14 – Limits the particulate emissions from the cremator to 0.20 lbs/1,000 lbs of exhaust gases, corrected to 50% excess air. Compliance with this condition is demonstrated by proper operation and maintenance of the cremator. The cremator appeared to be operated correctly based on my observations during this inspection.

Special Condition 15 – States that visible emissions from the cremator shall not exceed a 6-minute average of 20% opacity. This crematory furnace was mid-way through a cremation during this inspection. I did not notice any opacity.

Special Condition 16 – States that verification of emission rates by stack test may be required for operating approval. AQD is not requesting verification of emission rates at this time. No emissions testing has ever been performed on this crematory furnace.

Special Condition 17 – States that the applicant shall not operate the incinerator unless a minimum temperature of 1400°F and a minimum retention time of 0.25 seconds is maintained in the secondary combustion chamber. Mr. Armstead visually monitors this temperature at the start of each cremation; however, occasionally Mr. Armstead leaves the crematory while the furnaces are operating. During this inspection I observed that the secondary combustion chamber was at 1550°F. Based on my observations during this inspection the facility is in compliance with this condition.

Special Condition 18 – States that the applicant shall only burn pathological waste in the incinerator. According to Mr. Armstead, only human remains are burned in this crematory furnace.

Special Condition 19 – States that the applicant shall not operate the crematory furnace unless it is equipped with a limit switch to set and reset the timer for the afterburner each time the charge door is opened. Mr. Armstead stated that this unit is equipped with such a switch. When the charge door is opened, the primary burner automatically shuts off. The afterburner remains running when the door is opened unless manually turned off. This is mainly a safety measure.

Special Condition 20 – Requires proper operation and adequate maintenance of the incinerator to control emissions. A list of recommended maintenance procedures is attached to the permit. These same recommendations are included in both furnace permits. I will address both crematory furnaces in the bullets below.

- Mr. Armstead has been trained in basic crematory operation and maintenance. He is responsible for ensuring the secondary combustion chamber temperature stays above the required level.
- Grates are cleaned before each day's operation
- The oven is not preheated with a small amount of trash as recommended in the PTI No. 986-91. Instead, the burners are turned on for 15 minutes to preheat the furnace.
- Bodies larger than 400 lbs are not accepted in this furnace. Bodies larger than 500 lbs are not accepted in the newer furnace.
- The charge doors are only opened towards the end of the cremation to check and make sure the remains are fully burned.
- Only human remains are combusted in these furnaces.
- Combustion air ratios are adjusted as needed by Matthews Cremation during annual/biannual maintenance.
- Mr. Armstead stated that he periodically observes the stacks to watch for signs of opacity.
- A copy of the manufacturer's manual is kept near each of these furnaces.
- Basic maintenance is performed on a quarterly basis such as cleaning spark plugs and greasing bearings. Full maintenance checks by a crematory expert are only conducted annually or at least bi-annually.

Special Condition 21 – States that the disposal of collected ash shall be performed in a manner which minimizes the introduction of air contaminants to the outer air. Collected ash is carefully transferred from the crematory furnace to the grinding station. The grinding station is equipped with a furnace filter/blower that captures any airborne particulate generated. None of these processes are exhausted to the outdoors.

### **Secondary Processing**

Once combustion is complete the ashes/bones from the furnace, known as "cremains", are swept out of the furnace and transferred to a grinding station. A magnet is run through these cremains to remove any metal implants/staples that may have been in the body (so they don't damage the grinder). The cremains are then run through a grinder that pulverizes the cremains to a dust. This dust is transferred from the grinder to a box where it can be collected by the family or disposed of. This workstation is equipped with a blower that draws air through a furnace filter and exhausts the air back into the general in-plant environment. These furnace filters serve to collect some of the dust generated from the grinding and transferring processes. Another purpose of this blower system is to cool the cremains before grinding.

### **Compliance Determination**

At the time of this inspection May Memorial Crematory was operating in compliance with the Federal Clean Air Act; Article II, Part 55, Air Pollution Control of Natural Resources and Environmental Protection Act, 1994 Public Act 451; Michigan Department of Environment, Great Lakes, and Energy (EGLE-AQD) rules; and Permit to Install (PTI) Nos. 123-08 and 986-91.

NAME

Adam Bogner

DATE 12/28/2020

SUPERVISOR

K. Kelly