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

M067542364

FACILITY: UNIVERSITY OF MICHIGAN		SRN / ID: M0675
LOCATION: 1239 KIPKE DR, ANN ARBOR		DISTRICT: Jackson
CITY: ANN ARBOR		COUNTY: WASHTENAW
CONTACT: Brandi Campbell, Occupational Safety & Environmental Health		ACTIVITY DATE: 11/15/2017
STAFF: Diane Kavanaugh-Vetort	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Conducted complete scheduled inspection over two dates: 11/15 and 11/17. FCE Major Source ROP. On 11/15: Power and heating plants - CPP, HHP, Brehm, NCRC, Boiler MACT review On 11/17: Crematory, Ethylene Oxide sterilizers, Emergency Generator EPA Certification vs Testing Review (NSPS JJJJ, IIII, RICE MACT ZZZZ).		
RESOLVED COMPLAINTS:		

M0675 UNIVERSITY OF MICHIGAN, 11/15/17 INSPECTION OF CENTRAL POWER PLANT (CPP), HOOVER HEATING PLANT (HHP), BREHM TOWER, AND NORTH CAMPUS RESEARCH COMPLEX (NCRD); and 11/17/17 INSPECTION OF CREMATORY, AND ETHYLENE OXIDE STERILIZERS.

UM PRIMARY CONTACT:

Brandi Campbell, Sr. Environmental Specialist, Occupational Safety & Environmental Health, p: 734-647-9017; [campbelb@umich.edu](mailto:campbelb@umich.edu)

SUMMARY

On November 15 and 17, 2017, I conducted a complete scheduled compliance inspection (PCE/FCE) of the University of Michigan, Ann Arbor campuses (UM). The main office is located at 1239 Kipke Drive, Ann Arbor, MI. The purpose of the inspection is to determine the facility compliance status with the applicable federal and state Air Pollution Control regulations, specifically Act 451, Natural Resources and Environmental Protection, Part 55, Air Pollution Control, the administrative rules, and the conditions of UM's Renewal Operating Permit (ROP) MI-ROP-M0675-2014a.

The UM is a major source for criteria pollutants and hazardous air pollutants (HAP) and therefore is subject to one or more Major Source Maximum Achievable Control Technology (MACT) standards. UM also has installed a large number of emergency diesel and natural gas internal combustion engine generators subject to Major Source (MACT) standard (40 CFR 63 Subpart ZZZZ) and the associated New Source Performance Standard, 40 CFR Part 60, Subpart IIII or JJJJ. UM operates numerous natural gas and/or fuel oil capable boilers subject to the Major Source Boiler MACT standard (40 CFR 63 Subpart DDDDD) and New Source Performance Standard (40 CFR 60 Subpart Dc, or Db). UM submitted ROP Certifications timely and reported deviations as required during the previous 12 month period (2016 - 2017). UM submitted their 2016 MAERs timely.

COMPLIANCE INSPECTION DAY 1, 11-15-17

On November 15, the focus of the AQD compliance inspection was the UM campus four main power and/or heating facilities. UM Central Power Plant (CPP) main power and heating plant. Hoover Heating Plant (HHP) small heating plant for Athletics, Crisler Arena, and maintenance/main offices. Brehm Tower (Brehm) small heating plant for Kellogg Eye Complex. North Campus Research Complex (NCRC) power and heating plant for the former Pfizer area complex.

Contacts for Power & Heating facilities:

**CPP:** Jim Watterson, Maintenance Supervisor; Jim O'Brian, Manager  
**HHP and Brehm:** Glen Theeck, Maintenance Supervisor

**NCRC:** Mike Pepper, Manager; Chuck Bollinger, Operator

Upon my arrival to the Kipke main offices, I entered and met with contact Brandi Campbell. The inspection was announced a short time prior in order to coordinate with the various location contacts. During the inspection I conducted a physical walk through of the four power and/or heating plants identified above and located on the UM Campuses throughout Ann Arbor. I observed equipment and control rooms accompanied by Brandi Campbell. We observed the boilers, turbine generators, and the stacks from outside and inside the building (inspection of the plant roofs was not conducted). All equipment and general housekeeping appeared to be in good condition and no visible emissions, odors, or other compliance issues or concerns were observed except as detailed below for CPP.

All Plants have fuel oil storage. Natural gas has been the only fueled used for some time. Last fuel drop was 2014. Fuel sampling and analysis is done for each delivery and periodically to check condition of fuel in tanks (ck for leaks). There is no transfer of fuel between plants. CPP has @ 590,000 gallons storage; HHP has 40,000 storage; Brehm has 15, 000 storage; and NCRC has (2) 50K and a 25K Turbine/generator. All plants have Ultra low sulfur fuel. CPP has some left over higher sulfur fuel to use up, however new Co-gen can only use low sulfur.

Processes, permit applicable requirements, and inspection detail in the order inspected:  
**HOOVER HEATING PLANT (HHP):** BOILERS EU-B0805-01, EU-B0805-02, EU-B0805-03, EU-B0805-04. All are fueled by natural gas or fuel oil. All are subject to the Boiler MACT with applicable requirements under FG-BOILERMACT. BLR 02, BLR 03, are also subject to NSPS Subpart Dc. This is a heating plant only. Brandi and I met with Glen Theeck, and another Boiler engineer at HHP. They accompanied us on the inspection of both HHP and Brehm.

EU-B0805-01 - Decommissioned in place. Grandfathered installation date 1960, has no AR in permit except for FG-BOILERMACT.

EU-B0805-02, 750 HP, has NOx limits (lb/hr and lb/MMBtu) for natural gas or fuel oil firing. Sulfur in fuel 0.25% by weight. Opacity limit is 20% Rule 301.

EU-B0805-03, 750 HP, Opacity limit is 20% Rule 301. Sulfur in fuel 0.25%

EU-B0805-04, 500 HP, back-up boiler to #2 and #3. Per Glen, it had an internal inspection a couple months ago. Now being placed in wet storage for use during winter. Permit contains SO2 limit 1.0% by weight, maximum average sulfur content in fuel.

AQD requested copies of all operating hours, fuel usage, and emission calculation records for the prior 12 month rolling time period ending October 2017 and these are attached to this report to file. COMPLIANT

**BREHM TOWER (Brehm):** BOILERS EU-B5102-01(Nat gas w/diesel capability), EU-B5102-02 (Nat gas w/diesel capability); Applicable requirements in FG-B5102-01-02. EU-B5102-03 (Nat gas), EU-B5102-04 (Nat gas); Applicable requirements in FG-B5102-03-04. There are also three Diesel Emergency Generators located at Brehm with applicable requirements under FG-3GENS-5102, FG-EMERG-III, FG-EMERG-ZZZZ. All Boilers are subject to the Boiler MACT with applicable requirements under FG-BOILERMACT. All are also subject to NSPS Subpart Dc. Brandi and I followed Glen to drive to the Kellogg Eye Center building to observed these boilers.

During inspection I observed all four boilers were operating today. Glen said BLR #1 and #2

are low NOx. Provide steam to hot water boilers with heat exchanger, provide more MW into the two larger boilers.

FG-B5102-01-02 each Boiler 24.8 MMBTU natural gas and No. 2 fuel oil. NOx limits based on fuel, and 9.6 tons per year per 12 month rolling time period. CO limits based on fuel, and 7.8 tons per year per 12 month rolling time period. Sulfur content 0.05% by weight. Natural gas fuel usage limit: 350MM ft<sup>3</sup>/12 month rolling time period. Fuel Oil: 240,000 gal/12 month rolling time period.

FG-B5102-03-04 each Boiler 10 MMBTU natural gas. NOx limits lbs/hr and 7.5 tpy per 12 month rolling time period. CO limit in lbs/hr and 6.3 tpy per 12 month rolling time period. Natural gas fuel usage limit: 150MM ft<sup>3</sup>/12 month rolling time period.

AQD requested copies of all operating hours, fuel usage, and emission calculation records for the prior 12 month rolling time period ending October 2017 and these are attached to this report to file. COMPLIANT

**NORTH CAMPUS RESEARCH COMPLEX (NCRC):** BOILERS EU-BOILER2, EU-BOILER3, EU-BOILER1A, EU-BOILER1B, EU-BOILER5, EU-BOILER6, EU-TURBINE (Cogen Turbine, Nat gas w/No. 2 fuel oil capability), EU-DUCTBURNER (Supplemental heat to BOILER4 - Nat gas only). Turbine is subject to NSPS Subpart GG and MACT YYYY. Applicable requirements are also in FG-BOILERS1A&1B, FG-BOILERS2&3, FGBOILERS5&6 for the boilers indicated. NCRC includes buildings No. 800 and No. 85 with Diesel Emergency Generators and Fire Pumps. These have applicable requirements under FG-EMERG-III, and/or FG-EMERG-ZZZZ, FG-85-EMERGENS, FG-85-FIREPUMPS. Brandi and I briefly met with Mike Pepper, Manager, he was in a meeting and another operator Chuck Bollinger assisted us during the inspection.

EU-TURBINE (Cogen Turbine) 40.1 MMBTU/hr, EU-DUCTBURNER (Supplemental heat to BOILER4 - Nat gas only), NOx limit 36.1 lbs/hr 12 month rolling time period. Fuel oil 0.10% sulfur content by weight. Exhaust goes to Ductburner or to SV-BYPASS stack. The CO-GEN was operational today.

FG-BOILERS1A&1B, each 19.9 MMBTU/hr capacity. NOx limit lb/MMBTU and 1.02 tons per month for each boiler. No.2 fuel oil limit 0.05% sulfur by weight. Subject to NSPS Subpart Dc, and MACT DDDDD (Boiler MACT). Chuck explained these are the Clayton boilers and they start-up faster; so they have kept them. They check and test them every shift (2).

FG-BOILERS2&3, each 63.2 MMBTU/hr (50,000lbs steam/hr), NOx limit lbs/MMBTU and 3.23 tons per month. No. 2 fuel oil 0.10 % sulfur content by weight. Subject to MACT DDDDD (Boiler MACT). Boiler #3 is still operational but currently on lock-out. UM has inspected and Boiler inspector came out to check it. It has been down since May 2017.

FGBOILERS5&6, each 72 MMBTU.hr (nat. gas capacity) and 70 MMBTU/hr (No. 2 fuel oil capacity), NOx limits lbs/MMBTU (combined), NOx 3.58 tons per month each. Opacity 20% Rule 301. Fuel oil 0.10% sulfur content by weight. Subject to NSPS Subpart Dc, and MACT DDDDD (Boiler MACT). Boiler #5 was operational today.

AQD requested copies of all operating hours, usage, and emission calculation records for the prior 12 month rolling time period ending October 2017 and these are attached to this report to file. COMPLIANT

**CENTRAL POWER PLANT (CPP):** The University of Michigan CPP generates steam and electricity for use by various UM buildings and facilities. The plant consists of seven boilers and two turbines (all fired with natural gas and fuel oil; Boilers 7 and 8 are natural gas only), as well as associated steam turbines, electrical generators and ancillary equipment. Brandi and I drove to CPP and met with Jim O'Brian, Manager in the control room. I was also introduced to Jim Waterson, CPP Maintenance Supervisor.

EU/FG and operating status during inspection: EU-B0260-01 - not operating (removing for new Turbine project 2018). EU-B0260-02 - not operating (scheduled to be tested in January 2018). EU-B0260-03 - not operating. EU-B0260-04 - operating. EU-B0260-06 - operating. EU-B0260-07 and -08 are steam boilers for Turbines EU-T0260-09 and -10 - all of these EU were operating. These EU are associated together under flexible group FG-BT0260-CO cogeneration system. Also, EU-B0260-01 and -02 have Applicable Requirements in FG-B0260-01-02 and EU-B0260-03 -04 have Applicable Requirements in FG-B0260-03-04.

All the CPP Boilers, except for EU-B0260-07 and -08, are subject to the Boiler MACT Subpart DDDDD. FG-BT0260-CO (EU-T0260-09 and -10) are subject to NSPS Subpart GG and Turbine MACT Subpart YYYY.

**FG-B0262-01-02**, SO<sub>2</sub> emission rate from the two boilers when firing No. 2 fuel oil limit 0.56 lbs/MMBTU heat input, based upon a 24-hr period. NO<sub>x</sub> limit 0.30 lb/MMBTU heat input from the two boilers when firing No. 2 fuel oil based on a 24-hr average period. NO<sub>x</sub> limit 0.20 lbs/MMBTU heat input from the two boilers when firing natural gas based on a 24-hr averaging period.

The last RATA testing of CPP Boilers 3, 4, and 6 (NO<sub>x</sub> CEMS) and the Boiler 6 (COMS) were conducted on January 16, 2017. The testing was observed and reviewed by AQD and determined to be acceptable.

**FG-B0260-03-04: includes Boilers 3 and 4.** Boilers 3, and 4 are capable of firing natural gas or distillate fuel oil at the following heat input capacities: BLR 3: 315 MMBtu/hr; BLR 4: 315 MMBtu/hr; They are subject to CAIR Ozone NO<sub>x</sub> Trading Program and have exhaust stack specific requirements. SV-B0260-01 North Stack: 250 ft. and SV-B0260-02 South Stack: 159 ft.

Boiler 3 CEMS/COMS is NO<sub>x</sub>/O<sub>2</sub> Horiba Model ENDA-E4220L, P-1576.  
Boiler 4 is NO<sub>x</sub>/O<sub>2</sub> Horiba ENDA-E4220L, P-1577.

Limits from ROP:

SO<sub>2</sub> limit 0.56 lb/MMBTU heat input (each) while firing oil, based on 24 hour time period  
NO<sub>x</sub> limit 0.55 lb/MMBTU heat input (each) while firing natural gas & exhausting to South Stack, on a 24 hr average

**EU-B0260-06: includes Boiler 6.** The Boiler is rated 376 MMBtu/hr, and is capable of firing natural gas or distillate fuel oil. Boiler 6 is subject to CAIR Ozone NO<sub>x</sub> Trading Program, and federal NSPS Subpart Db. Boiler 6 is NO<sub>x</sub> /O<sub>2</sub> Horiba Model ENDA -E4220L, P-2072.

Limits from ROP:

NO<sub>x</sub> limit 0.10 lbs NO<sub>x</sub> /MMBTu heat input, nor  
NO<sub>x</sub> limit 36.0 lbs NO<sub>x</sub>/hr, based on a 24-hr rolling time period.  
NO<sub>x</sub> limit 88.3 tons NO<sub>x</sub>/yr 12 month rolling time period.  
SO<sub>2</sub> limit 0.30 lbs SO<sub>2</sub>/MMBTu and,

SO2 limit 108.0 lbs SO2/hr, based on a 24-hr rolling time period.  
SO2 limit 38.6 tons SO2/yr 12 month rolling time period.  
CO limit 0.15 lbs/MMBtu (oil fired) nor 0.10 lbs/MMBtu (natural gas)  
CO limit 170.3 tons per 12 month rolling time period.  
(Also have 20% Opacity limit, VOC limits -refer to ROP)

Maximum No. 2 fuel usage limit: 1,774,286 gallons per 12 month rolling time period as determined by the tenth day of each calendar month.

**Turbine 10 Specs:** EU-T0260-10 Solar Centaur Model T5900, 3.8 MW industrial gas turbine and that can burn either natural gas or No. 2 fuel oil. The turbine uses water injection at the combustor section to reduce NOx emissions.

CO emission limit 7.54 lbs/hr natural gas, nor 37.87 lbs/hr when firing No. 2 fuel oil.

**Turbine 9 Specs:** EU-T0260-09 Solar Centaur Model T5900, 3.8 MW industrial gas turbine and that can burn either natural gas or No. 2 fuel oil. The turbine uses water injection at the combustor section to reduce NOx emissions.

Both turbines contain a heat recovery steam generator (referred to as Boiler 7 and 8) that each use a natural gas duct burner for supplemental firing. Normal operation of this combined-cycle system is continuous at 100 percent turbine load. Distillate oil use in the turbines is limited to 1,000 hours per year and the sulfur content of the fuel is not to exceed 0.15 percent by weight.

During the inspection Brandi and I observed the CPP control room and spoke to operator, Jim O'Brian. During a prior inspection during the last RATA (January 2016) I learned that steam is sent through tunnels. There are approximately 4 tunnels some with two lines, for example there is a 6 inch and 10 inch line to the Hospitals. Water is continually collected in a loop. The Control panels show monitoring for all parameters of load, and water in gallons per minute (GPM). CPP has automatic load balancing. My understanding is that what electricity UM produces supplements Detroit Edison: Maximum they are allowed is 26 MW.

AQD requested copies of all operating hours, usage, and emission calculation records for the prior 12 month rolling time period ending October 2017 and these are attached to this report to file. COMPLIANT

### **FG-BOILERMACT**

UM ROP contains the Major Source Boiler MACT Subpart DDDDD Table and references @ 187 boilers currently. UM subject boilers are either "gas 1 subcategory" gaseous fuel or "light liquid subcategory" fuel. They fall into one of four subcategories: Large gaseous fuel, Large liquid fuel, Small gaseous fuel, Small liquid fuel. The "Light Liquid subcategory" emission limits are listed. UM has made a decision to limit all boilers to the 48 hour annual liquid fuel use limitation allowing their combined fuel boilers to remain under the "gas 1 subcategory". The remainder of the requirements, including testing and tune-ups are tracked by UM in a spreadsheet.

### COMPLIANCE INSPECTION DAY 2, 11-17-17

On November 17, the focus of the AQD compliance Inspection was the Ethylene oxide sterilizers, the Crematory Incinerator, and review of Emergency Generators certification or testing. I met contact Brandi Campbell at the Kipke offices and we again rode together to the

UM Hospital Complex. On this day, all observed equipment appeared to be in good condition and no visible emissions, odors, or other compliance issues or concerns were observed except as detailed below for the Crematory.

**ETHYLENE OXIDE STERILIZERS (EtO):** The first location inspected is referred to as UM Hospital Central Sterile Processing Department (CSPD). All sterilization equipment is operated and maintained here. The area contains the 3M model 5XL and 8XL EtO Sterilizers: EU-ETO-1E, EU-ETO-2E, EU-ETO-3E, EU-ETO-4E, EU-ETO-5E, EU-ETO-6E. Each is controlled by a 3M 50 EtO catalytic oxidizer. All applicable requirements are included in FG-6ETO. They use 100% sterilant gas.

**CONTACTS:** Jania Torreblanca, CSPD Manager; Kris Carlisle, Foreman, Hospital Maintenance; Brian Trimmer, Maintenance, and an operator.

I was introduced to Kris Carlisle, and Brian Trimmer. They provided a thorough explanation of the process and the equipment. I observed several log books on site for operational procedures, preventative maintenance, and emergency/repair information. UM informed me that both St. Joseph Mercy and Veterans hospitals send their sterilization items here.

3M is the sterilizer manufacturer and provides some emergency response and a maintenance contract. BTEC Inc. prepared UM's EtO Sterilizer Malfunction Abatement Plan (MAP) and Brandi provided me with an updated version 11-17-2017. The MAP was revised to change contact names. This will be placed in their plant files. It explains the process in more detail. EU-ETO-1E, EU-ETO-2E are the smaller Units - limited to use no more than 100 grams of EtO per cycle/load.

EU-ETO-3E, EU-ETO-4E, EU-ETO-5E, EU-ETO-6E are larger Units - limited to use no more than 170 grams EtO per cycle/load.

I observed the two sizes which look like hair spray canisters (100 small, 170 larger). Canisters are contained in cardboard boxes and stored in a metal cabinet.

**FG-6ETO:** EtO emission limit for all sterilizers combined is 1.42 lb/yr based on 12 month rolling time period as determined at the end of each calendar month. AQD requested FG-6ETO records for the 12 month period ending October 2017. Brandi emailed the emissions and usage spreadsheets. UM records indicate: EtO emissions of 3.38E-01 lbs for the 12 month period ending October 2017. COMPLIANT

FG-6ETO also contains an emission limit in pounds per hour, based on the testing of all sterilizers operating at one time. AQD has not required testing to date. Normally all sterilizers do not operate at the same time. The CSPD Manager, Jania arrived to the area just before we were finishing and said the average is 5 loads per day total and they leave one unit open for emergencies.

ROP Condition VI. requires recordkeeping. UM is required to keep record of the number of cycles/loads processed in each Sterilizer per calendar day and per calendar month. COMPLIANT

I observed EtO #4 was operational. Per Kris and Brian, EtO #5 and #6 did operate earlier today. Each unit runs single use cycles, approximately 3 cycles can be run per unit, per 2 days. Each cycle takes 15 hours. Daily PM's are done including alarm sound checks. Every 6 months they check the motors. There are vacuum alarms to assure sterilizer vacuum. Numerous leak detection monitors are located in the room and outside the door.

Monitors are also in EtO storage cabinets. Monitors are calibrated (ChemDAQ system). Per Brian there are 7 monitors in 7 areas, with 0.1 ppm detection limit. The temperature of the Cat Ox. abator control must reach 373 degrees F before start up of the Unit and they are interlocked.

The controls are 3M Model 50 EtO "Abator" catalytic oxidizers. They contain a charcoal base, honeycomb catalyst. Per UM, they have not needed to change the material in them yet. Emissions are mostly water vapor. There is an error code for catalyst bed failure, dedicated to each unit/line. The MAP and the 3M maintenance agreement assures they are installed and operating properly to meet the 99.9 percent control efficiency requirement in the ROP.

ROP VIII. shows 4 stacks, SV-EF-310, 311, (each 20 in diameter and 77.25 feet) and SV-EF-312, 313 (28 in dia. and 85.25 ft). I observed a monitor in the sterilizer room labeled E312 and E313. Per Brian these are dual exhausts and only one operates at a time. The stacks are located on the 3rd floor roof and it is a secure area to prevent accidental exposure to anyone in the area. Following the inspection Brandi clarified for me, EF-312 (with EF-313 backup) exhausts the discharge from all 6 of the abators whereas EF 310 (EF-311 backup) provides general exhaust from the room.

It was noted and communicated to Brandi, that Conditions under IX. Other Requirements in the current ROP are obsolete and should be removed during Renewal.

CREMATORY: EU-I0213-02 is a Matthews Cremation Division model IE43-PPI (Power-Pak 1), natural gas fired, 750 lb. maximum capacity, 150 lbs./hr. burn rate located at the Medical Sciences II Building 0213. Has a secondary combustion chamber with afterburner.

Brandi and I walked to the Human and Pathological waste Crematory location. I met with Dean, Manager and Kenny, Operator. They had started a burn about 35 minutes ago and Kenny was about to go out on the mezzanine level to observe the stack for visible emissions (Opacity) smoke. Brandi and I accompanied Kenny. I did not observe any visible emissions during about a 5 minute period. We returned to the crematory room and I observed the control panel, and the condition of the Unit and area. Dean demonstrated the Opacity monitor in-stack in this room by placing a hand between the sensor and an flashing light alarm is triggered at the control panel. EU-I0213-02 appeared to be installed and operating properly. COMPLIANT

I observed that since the last inspection, UM installed an industrial vacuum in the Crematory room that includes a particulate collector on the remains processing (pulverizing) hood located in the same room. Hoses/duct work are connected to an inside exhausting collector with 55 gallon drum attached, similar to units typically used in wood working shops. Per Dean the collected ash is placed with the burned ash for proper disposal with the patients/donations burials.

Following the inspection Brandi emailed to me a copy of the log sheet I reviewed during the inspection. She also sent a copy of another log sheet between October 2016 and October 2017 and their Quarterly Spreadsheet documenting waste being burned. COMPLIANT

During the inspection Dean informed us that the temperature monitoring parameter recording device was found to be malfunctioning yesterday and this has continued as of today. Dean had contacted IT to determine remedy. The malfunction has not impacted operation of the

Crematory and all monitoring appears to be normal. The issue is with the computer logging the information. I requested they provide me with the details and corrective action as soon as they can. Brandi and I discussed that this **will need to be reported as a deviation** as well.

Immediately following the inspection, Brandi informed me that the IT department is bringing an older laptop in to pull up data and see what they find tomorrow morning. They are planning on determining the issue. They have a work order in to hook the data in to the Building Automation System to provide for another back up. They are not going to burn in the Crematory until it's resolved. They will keep me updated when they determine the issue. (See Compliance Summary for further details)

### COMPLIANCE SUMMARY

Overall at the time of the inspection the UM appears to be in substantial compliance with the federal and state requirements contained in their ROP MI-ROP-M0675-2014a.

Two Deviations were identified during or shortly following the inspection. UM was advised to report the deviations appropriately including updating past ROP Certification/Deviation Reports if applicable.

1. The Crematory deviation discussed (above) did not result in an emission limit exceedances and was addressed timely, however it did extend into 2016 and UM prior Certifications need to be revised and resubmitted. On 12/6/17 I received an email update from Brandi:

*"We were able to retrieve data with an older computer, but learned that **there is loss data from 2/5/2016 till 11/17/2017**. They believe the loss data was from the flash card being pushed in too far when an electrician had come and repaired the unit. The repair coincides with when the recorder stop recording. The only data I have to show are my notes when I visit the site and review the screen, which I attached. When I perform my site visits, I typically look at the logs, get an update on maintenance and look at the temperatures if they are burning to verify temperatures.*

*This has been resolved and is recording fine and has been checked weekly. Attached is a copy of the November report. They will be hooking the system up to the Building Automation System to where the data can be accessed immediately for real time or reports can be downloaded on a regular basis. We will be asking for a monthly download which will be going to EHS as well as to Dean. They said it should be done within a couple weeks after the new year. This will be written up as a deviation."*

2. CPP Meter malfunction: It appears that UM experienced a **malfunction** in the CPP of the Turbine 10 meter device and monitoring system required by SC VI.2, and VI.3. If the Turbine continued to operate through the malfunction they need to determine if they had an "excursion" of the Minimum water-to-fuel ratio value of 0.5 when firing natural gas (assumed) SC VI.2. And defined in SC VI.3. NOx is the only emission limit potentially impacted it appears, and there are four limits listed in FG-BT0260-CO. The NOx emission limits are tied to the SC VI.4 monitoring for ongoing compliance. Monitoring is the ratio of water injected to fuel fired and the use of fuel flow and water flow meters.

Brandi investigated the incident and UM is reporting it timely. She informed me that the CPP, Turbine 10 meter malfunction /also to be reported as a deviation, did not result in an emission limit exceedance however, the remedy proposed is to replace the older style meter (also

Turbine 9) with a new more efficient type of meter and this will require a Permit to Install revision application. This is because the existing meter type is referenced in multiple Tables in the ROP.

On 12/1/17 AQD contacted Permit Section for verification of the existing meter type being specified in the permit. It appears that UM provided this information to Permits at the time of their application and the meter is not specifically required by state or federal rule. It is also in the CAM Plan and has conditions in the ROP and this will also need to be updated.

UM Renewal is due in 2018 and CAM could be modified at that time. I informed UM if the malfunction resulted in an emission limit exceedance this triggers review under Rule 912 (1) through (7) and it is necessary to walk through these sub paragraphs to determine reporting requirements. Rule 912 (3) could potential apply in this case, however from what I was told, the malfunction, *and any potential NOx limit exceedance*, did not continue for more than 2 hours. Brandi stated she intends to meet with the CPP engineers and obtain more details and complete the reporting/permit process. UM is aware an excursion of an operational or monitoring limit would be reported as a deviation. Any failure to demonstrate compliance with a condition of the ROP is a reportable deviation in most cases. An *emission limit* exceedance is both a reportable deviation and could potentially also be reportable under Rule 912 if applicable.

NAME  DATE 4/22/18 SUPERVISOR 