

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

D639438325

FACILITY: Mid Michigan Medical Center - Gratiot		SRN / ID: D6394
LOCATION: 300 Warwick Dr, ALMA		DISTRICT: Lansing
CITY: ALMA		COUNTY: GRATIOT
CONTACT: Nicholas Bovid , Facility Operations Manager		ACTIVITY DATE: 12/14/2016
STAFF: Michelle Luplow	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MINOR
SUBJECT: Scheduled, unannounced inspection to determine compliance with PTI No.299-93 and NSPS Subpart IIII.		
RESOLVED COMPLAINTS:		

Inspected by: Michelle Luplow

Personnel Present: Nick Bovid, Facility Operations Manager (Nicholas.bovid@midmichigan.org)

Jeff Finkbeiner, Engineering Department Supervisor

Purpose: Conduct an unannounced, scheduled compliance inspection by determining compliance with MidMichigan Medical Center's (MMC) Permit to Install (PTI) No. 299-93 for a EO sterilizer with abator system. The facility was last inspected in January of 2015, the first time since 1987.

Facility Background/Regulatory Overview: MMC is a hospital. The permitted EO sterilizer is used for sterilizing any medical equipment that can't be sterilized at or above 270°F (steam sterilization), such as cameras. EO sterilizers operate at lower temperatures than traditional sterilization equipment.

In addition to the EO sterilizer MMC also has 5 boilers and 5 generators onsite. See Tables 1 and 2. MMC is still in the process of conducting a potential to emit (PTE) for the facility to determine if major source threshold levels have been met or exceeded. Upon receipt of the PTE demonstration the AQD will determine if MMC should apply for a Title V permit.

RICE MACT ZZZZ Emergency Engines at Area Source of HAP

MMC has 5 emergency generators (see Table 1). The Cummins QSX15-G9 750 HP engine is subject to the NESHAP for existing emergency compression ignition engines, greater than 500 HP constructed before June 12, 2006. The Cummins 6BT5.9-G6 (170 HP) and Cummins WSG 1068 (176 HP) engines are subject to the NESHAP for existing emergency compression ignition engines, less than or equal to 500 HP, and constructed before Jun 12, 2006.

"Emergency engines" are defined as not being operated for more than 100 hours per calendar year for readiness testing and maintenance checks, and may be operated up to 50 hours per calendar year for non-emergency situations (the 50 hours is included in the aforementioned 100 hours per calendar year). N. Bovid verified that they have not operated any of these engines within the past 2 months (since his start in his current position at MMC) for emergencies. He explained that they run the generators on an annual basis for 4 hours each (maintenance). They are also required per their Utility Management Plan (via the Joint Commission under the Federal Center for Medicare and Medicaid) to test-run the generators on a monthly basis for 1 hour each. Based on this information, the engines are operated for a total of 16 hours per year for maintenance and readiness testing, out of their allowed 100 hours per year. The engines have therefore all been operated as emergency engines in 2016.

The Air Quality Division currently does not have the delegated authority to enforce the RICE MACT ZZZZ for area sources.

NSPS for Compression Ignition Internal Combustion Engines, Subpart IIII

The two 1500 HP engines are subject to NSPS Subpart IIII for emergency engines <30 l/cyl, model 2007 and later. Upon review of the regulation via EPA's NSPS quiz tool, MMC is subject to the following Subpart IIII sections: 40 CFR 60.4205(b), §60.4202; §60.4207(a),(b), (e); §60.4208(a), (b), (h), (i); §60.4209(a); §60.4211(a), (c), (f), (g); §60.4206; §60.4214(b). The total cylinder displacement for each engine is 30.5 L, which N. Bovid calculated to be 2.54 L/cyl. See attached for applicable NSPS Subpart IIII regulations (provided by NSPS EPA decision tree tool).

Emergency CI engines <30 l/cyl are required to demonstrate that the engines are certified to meet the emission limits in the NSPS and to maintain the engines via manufacturer's specifications. N. Bovid will provide me with this information.

once the manufacturer responds to his request for providing certified emissions data. MACES will be updated when this is provided.

These engines are required to be certified to the emission standards in 40 CFR 89.112 (emission standards) and 40 CFR 89.113 (opacity standards) for new nonroad CI engines: 6.4 g/kW-hr NMHC + NOx; 3.5 g/kW-hr CO; 0.20 g/kW-hr PM.

Attached are examples of inspection checklists from 2 of the engines during their annual inspections conducted by W. W. Williams, who inspect and maintain the engines annually. Future compliance will be determined concerning whether these inspections meet manufacturer's maintenance specifications.

Boiler MACT NESHAP JJJJJJ for area sources of HAPs

All 5 boilers are exempt from the Boiler MACT NESHAP Subpart JJJJJJ because they are classified as "gas-fired boilers" as defined in 40 CFR 63.11237. To be considered a gas-fired boiler, the boiler must burn gaseous fuels not combined with any solid fuels and burn liquid fuel only during periods of gas curtailment, gas supply interruption, startups, or periodic testing on liquid fuel. The periodic testing of liquid fuel should not exceed a combined total of 48 hours during any calendar year.

On September 13, 2011 MMC (then Gratiot Medical Center) sent a notification to the AQD office for the NESHAP JJJJJJJ Boiler MACT indicating that they were subject to its regulations. However, based on my review of the Boiler MACT JJJJJJJ, MMC would not be subject because the boilers meet the regulation's the exemption definition of a "gas-fired boiler."

NSPS for Small Industrial-Commercial-Institutional Steam Generating Units Subparts Da, Db, Dc

The 3 Kewanee boilers are exempt from the NSPS Subparts Da, Db, and Dc because they are smaller than 10 MMBTU/hr. The two Cleaver-Brooks boilers are subject to NSPS subpart Dc because they are less than 100 MMBTU/hr, but greater than or equal to 10 MMBTU/hr, and have the capability of burning fuel oil. The NSPS Dc says that they must meet a 0.5 wt% sulfur content of the fuel oil as an alternative to SO2 emission limit testing. M. Evitts said in the 2015 inspection that the fuel oil sulfur content is 5 ppm (which is 0.005 wt%). Because MMC's fuel oil meets the 0.5 wt% sulfur content limit, it is not subject to the PM limit in NSPS Dc. MMC is subject to all applicable notification and recordkeeping requirements as specified in 40 CFR 60.48c.

NESHAP Subpart O – Ethylene Oxide Emissions Standards for Sterilization Facilities

MMC is not subject to 40 CFR 63 Subpart O because the subpart does not apply to "ethylene oxide sterilization operations at stationary sources such as hospitals, doctors offices, clinics, or other facilities whose primary purpose is to provide medical services to humans or animals." (40 CFR 63.360(e))

Equipment located onsite (in addition to EO sterilizer)

Table 1. Emergency Generators

Engine	Serial #	HP	KW	MMBTU/hr	Hours	Fuel	PTI No.	Installation Date	Manufacture Date	Federal Regulation
Cummins QST30-G5	37228493	1500	800	7.84	357.7	Diesel	Exempt R285(g)	9/2007	5/2007	NSPS Subpart IIII (emergency, <30 L cylinder displacement)
Cummins QST30-G5	37228519	1500	800	7.84	363.3	Diesel	Exempt R285(g)	9/2007	5/2007	NSPS Subpart IIII (emergency, <30 L cylinder displacement)
Cummins QSX15-G9 NR2	79017789	750	500	1.7	463.2	Diesel	Exempt R285(g)	5/2004	8/2003	Area source RICE NESHAP ZZZZ for existing Emergency Engines >500 HP
Cummins 6BT5.9-G6	46329015	170	100	0.3	414	Diesel	Exempt R285(g)	1/2005	9/2003	Area source RICE NESHAP ZZZZ for

										existing Emergency Engines < 500 HP (pre June 2006)
Cummins WSG 1068	052539493	176	100	0.3	373.7	Natural Gas	Exempt R285(g)	5/2005	1/2005	Area source RICE NESHA ZZZZ for existing Emergency Engines < 500 HP (pre June 2006)

Table 2. Boilers

Boiler	Serial #	BTU/hr	Fuel	PTI No.	Manufacture Date	Federal Regulation
Kewanee	NB18256	6,840,000	Sweet Natural Gas	Exempt R282(b)(i)	1954	Exempt from NSPS Da, Db, Dc; Exempt from Boiler MACT Subpart JJJJJ (classified as "gas-fired boiler")
Kewanee	NB18257	6,840,000	Sweet Natural Gas	Exempt R282(b)(i)	1954	Exempt from NSPS Da, Db, Dc; Exempt from Boiler MACT Subpart JJJJJ (classified as "gas-fired boiler")
Kewanee	NB21134	6,840,000	Sweet Natural Gas	Exempt R282(b)(i)	1954	Exempt from NSPS Da, Db, Dc and from Boiler MACT Subpart JJJJJ (classified as "gas-fired boiler")
Cleaver Brooks CBI- 200-250-150	OL105029	10,206,000	Sweet Natural Gas & Fuel Oil #2	Exempt R282(b)(ii)	2007	NSPS Subpart Dc; Exempt from Boiler MACT Subpart JJJJJ (classified as "gas-fired boiler")
Cleaver Brooks CBI- 200-250-150	OL105830	10,206,000	Sweet Natural Gas & Fuel Oil #2	Exempt R282(b)(ii)	2007	NSPS Subpart Dc; Exempt from Boiler MACT Subpart JJJJJ (classified as "gas-fired boiler")

Inspection: This was an unannounced scheduled compliance inspection. At approximately 8:30 a.m. on December 14, 2016 I met with Nick Bovid, MMC's Facility Operations Director. (When arriving at the hospital, go to the front desk volunteer to call your contact directly to meet you in the lobby). I provided N. Bovid with a Boiler MACT outreach brochure and a copy of PTI 299-93 for the EO Sterilizer with abator system.

PTI No. 299-93 – 3M Steri-Vac Ethylene Oxide (EO) sterilizer with Donaldson catalytic abator

During the 2015 inspection Bob Francisco and I verified that the unit permitted in 1993 is the same unit that is currently present onsite. The sterilizer has top (Model 487AGP, Serial # 701517) and bottom (aeration) chambers. The catalytic abator (Model 4614893002, Serial # ETX006550) is a separate unit. Garret Bass said during the 2015 inspection that it takes 12 hours for one batch of equipment to be sterilized, and it takes an additional 3 hours for the unit to treat and exhaust the gas in the abator system.

The AQD has never requested that a stack test for EO emissions be conducted to determine the control efficiency of the catalytic abatement system thus the emission rate of EO from the stack. The permit requires that this be done only upon request from the division, the limit of which is 0.9 mg/m³.

MMC is required to keep the monthly sterilant usage data for at least two years. I asked one of the employees in the sterilization department to provide me with the October 2016 purchase records of EO, as a surrogate for usage records. The purchase record shows that each monthly purchase consists of a box of 12 EO canisters. One 100-g canister is used per batch of equipment to be sterilized. Assuming the sterilizer is used daily and 2 sterilization batches are run per day, the maximum EO MMC could use on a monthly basis is 60 canisters (6,000 grams), equivalent to 720 canisters per year. During the 2015 inspection only 127 canisters had been used for the year.

MMC is also required to ensure that the catalytic abatement system on the sterilizer unit is installed and operating properly. G. Bass, during the previous inspection, said that a 3M contractor services their unit: they inspect the unit 2 times per year (every 6 months) and replace parts in the sterilizer semi-annually. Additionally, there are internal services that are also performed on the unit on a quarterly basis, which includes performing leak checks using their leak-check monitor. If there is a leak, an alarm sounds. Larry George, 3M's service technician for the EO unit, said that he replaces/inspects all hoses, fittings, etc.; however, he said they do not check to determine if the catalyst/abator portion of the unit is operating properly.

Based on follow-up communication between B. Francisco and I after the 2015 inspection, I was informed that the catalyst in the abator had not been replaced since its installation in 1993. The 3M manual states that replacement of the catalyst should be conducted every 3 years. MMC had not been operating their abator system properly, as the catalyst had never been replaced, but a Violation Notice was not written because the catalyst was replaced on 4/21/2015. The next catalyst replacement is required by 4/21/2018, and I reminded N. Bovid and staff of this. In response to this reminder, staff showed me their maintenance log, which records and notifies when maintenance has been done or will be done. The next catalyst replacement, based on their maintenance log system is 4/1/2018.

At this time MidMichigan is in compliance with state and federal regulations.

NAME  DATE 4/18/17 SUPERVISOR 