

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

N601632510

FACILITY: GENESYS REGIONAL MEDICAL CENTER		SRN / ID: N6016
LOCATION: ONE GENESYS PARKWAY, GRAND BLANC		DISTRICT: Lansing
CITY: GRAND BLANC		COUNTY: GENESEE
CONTACT: Scott Cruzen , Environmental, Health and Safety Manager		ACTIVITY DATE: 12/03/2015
STAFF: Julie Brunner	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Scheduled Inspection		
RESOLVED COMPLAINTS:		

On December 3, 2015, AQD staff (Julie Brunner) conducted a scheduled inspection of Genesys Regional Medical Center (N6016). The facility is a medical complex including a hospital, MRI Center, and supporting medical offices.

Contacts:

Jay Chase, Facility Manager, 810-606-5278, jay.chase@genesys.org

Rodney Jones, facilities management, 810-252-8777, rjones@genesys.org

Scott Cruzen, Safety Officer, facilities management, 810-252-8778, scott.cruzen@medxcelglobal.com

Facility Description and Regulatory Overview:

This facility is a medical center complex consisting of the hospital, MRI center in Genesys Health Park, and associated support facilities. With the last inspection on 7/14/2011, the state registration numbers (SRN) were consolidated. This means that the health park is considered one stationary source assigned SRN N6016. Previous SRNs used were M0784, N5665, D3674, and D3699 (which is actually a general permit for McLaren Medical Center).

The facility is located in Grand Blanc and is in a large medical center parkway right off of I-75.

Genesys (N6016) is a minor source with a potential to emit of less than 250 tons per year (tpy) of any regulated air contaminant. The facility is considered minor for emissions of hazardous air pollutants (HAPs) with a potential to emit less than 10 tpy of any single HAP and 25 tpy of aggregate HAPs. The facility has opted out of the Title V - Renewable Operating Permit (ROP) Program. Genesys has two active Permits to Install (PTI): PTI 399-96 and PTI 41-15.

PTI 399-96 is for four (4) ethylene oxide (EtO) sterilizers to sterilize hospital equipment. Only one EtO sterilizer is still operating. Two have been removed from the facility, and the third is non-operational and used for parts. The facility is using mainly steam and hydrogen peroxide (H₂O₂) to sterilize equipment. There are four (4) steam sterilizers and four (4) H₂O₂ sterilizers currently used by the facility. The steam and H₂O₂ sterilizers are exempt per Rule 281(i).

PTI 41-15 is considered an opt-out permit which includes facility-wide synthetic minor restrictions so that the facility is not subject to the ROP Program. PTIs 316-95, 317-95, and 318-95 for the fire pump engine, two (2) emergency generators, and three boilers were rolled into PTI 41-15 along with an exempt emergency generator and small boiler located at the MRI center. The exempt units are now technically permitted. The emission units listed on this permit are as follows:

Emission Unit ID - Emission Unit Description

EUBOILER1* - 33 MMBtu/hr natural gas and fuel oil-fired boiler that provides steam to the hospital. (Manf. in 1995)

EUBOILER2* - 33 MMBtu/hr natural gas and fuel oil-fired boiler that provides steam to the hospital. (Manf. in 1995)

EUBOILER3* - 33 MMBtu/hr natural gas and fuel oil fired-boiler that provides steam to the hospital. (Manf. in 1995)

EUBOILER4 - 0.4 MMBtu/hr natural gas-fired boiler located at the MRI center

EUEMERGENGINE1 - 1482 hp (9.79 MMBtu/hr) diesel-fired reciprocating internal combustion engine (RICE) driving an emergency generator. (Manf. in 1995)

EUEMERGENGINE2 - 1482 hp (9.79 MMBtu/hr) diesel-fired RICE driving an emergency generator. (Manf. in 1995)
EUEMERGENGINE3 - 300 kW (4.16 MMBtu/hr) diesel-fired RICE driving an emergency generator at the MRI center. (Manf. in 2012)
EUEMERGENGINE4 - 160 hp (1.5 MMBtu/hr) diesel-fired RICE driving an emergency fire pump. (Manf. in 1995)

*EUBOILER1, EUBOILER2, and EUBOILER3 share a common stack, but PTI 41-15 lists three (3) separate stacks for the boilers. The three (3) boilers have always shared a stack as listed on the original permit (PTI 318-95) for the boilers.

MAERS for the 2014 Reporting Year:

RG-BOILERS (EUBOILER1, EUBOILER2, and EUBOILER3):

CO – 5.6 tpy
NOx – 6.7 tpy
PM10, primary – 0.51 tpy
PM2.5, primary – 0.51 tpy
SO₂ – 0.08 tpy
VOC – 0.37 tpy

RG-EMERGENCY-EQP:

CO – 0.14 tpy
NOx – 0.63 tpy
PM10, primary – 0.04 tpy
PM2.5, primary – 0.04 tpy
SO₂ – 0.04 tpy
VOC – 0.05 tpy

RG-STERILIZERS:

VOC – 0.03 lb

Arrival:

I arrived at approximately 9:00 AM. No visible emissions were observed from any of the facility exhaust stacks upon arrival.

A pre-inspection meeting was conducted with Mr. Jay Chase (Facility Manager). The facility operations were discussed. The areas that needed to be inspected were the power plant and the sterilization operations. Federal requirements for the operation of the boilers and emergence engines were also discussed. A facility tour was then taken starting with the power plant.

Power Plant:

The boilers (EUBOILER1, EUBOILER2, and EUBOILER3), two (2) emergency generators (EUEMERGENGINE1 and EUEMERGENGINE2), and a fire pump (EUEMERGENGINE4) are located in the power plant for the medical center. The power plant was built in 1995.

The fire pump engine is a CAT Engine Model: 3208 (Serial No. 90N75392), 8-cylinder engine, manufactured in 1995 with a 150 – 200 gallon fuel oil tank. The operating log is kept in the room with the engine. It is tested weekly for 10 minutes. The hours of operation for the engine were 285 hours according to the engine clock. The engine is exhausted horizontally out of an exterior wall about 8 feet above ground level.

The two (2) emergency generators (EUEMERGENGINE1 and EUEMERGENGINE2) are identical 12-cylinder CAT engines model: SR4 manufactured in 1995. EUEMERGENGINE1 (Serial No. 2GM00514) at the time of inspection had 877 hours on the operating clock. EUEMERGENGINE2 (Serial No. 2GM00513) at the time of inspection had 827 hours on the operating clock. The engines are testing weekly for 0.5 hours and monthly for 1 hour. The maintenance record is kept on the engine. The two (2) engines separately exhaust out the roof. Above the roof the exhaust vents have elbows that direct the gases horizontally. This is to prevent rain from getting into the stack.

The three (3) identical boilers (EUBOILER1, EUBOILER2, and EUBOILER3) are fired mainly on natural

gas with fuel oil for backup. All have tags dated 1995. EUBOILER1 has tag number #9328-03, EUBOILER2 has tag number #9328-01, and EUBOILER3 has tag number #9328-02. They produce steam for the hospital and are not used for electrical generation. Only one boiler is operated at a time with one boiler on standby. At the time of inspection, EUBOILER1 was operating at 21% load and EUBOILER2 was on standby. An inspection of the power plant roof showed that the boilers do vent out of one common stack. There were no signs of particulate fallout on the roof and no visible emissions were observed from the boiler stack.

Beside the power plant building are two (2) horizontal fuel oil tanks; a 15,000 gallon tank for the boilers and an 8,000 gallon tank for the emergency generators. Both tanks are clearly marked "LOW SULFUR".

EtO Sterilizers:

The inspection of the sterilizer operations were conducted with Sean Eads who runs the department. Sean provided the records for the loads sterilized using EtO, steam and H₂O₂ sterilizers. An electronic copy of the maintenance records for the EtO sterilizer was also viewed. Genesys is working on eliminating all sterilization using EtO. Only one EtO sterilizer is operational. PTI 399-96 is for four sterilizers. When the last sterilizer has been removed from service, the permit can be voided.

A copy of the "EtO Emission Control System Test Report" dated May 5, 2015 was provided. Scott Cruzen glanced at the report and it was noted that the control efficiency was tested at 96.2%. It was stated in the report that the emission control system passed. It was not passing because the permit requirement is 99.9%. The tester was contacted and a revised copy of the report was provided, confirming that DE tested was 96.2%. The control system on the EtO sterilizer was not meeting the permitted control efficiency.

Post Inspection Discussion:

A post inspection discussion was held with Jay Chase, Rodney Jones, and Scott Cruzen. The discussion centered on PTI 41-15 which is an opt-out permit that was issued June 4, 2015 due to the pending elimination of Rule 208a. Rodney was the authorized representative for the permit application. Jay is new and was not familiar with the permit. Scott was the former environmental contact and was not working with Genesys at the time of permitting. The requirements of the permit were discussed. I pointed out some areas of the permit that may be cause for concern. For the dual-fuel fired boilers, (EUBOILER1, EUBOILER2, and EUBOILER3), the NOx emission limit of 13.62 lb/hr and the 5840 hr/yr operating restrictions that were part of PTI 318-95 had been removed. The short-term limit restricts potential emissions of NOx and would be verified using testing. Removal of the hours per year operating restriction resulted in a potential increase of 20 tons of NOx and a facility-wide potential of just less than 90 tpy of NOx. The now needed opt-out limit of less than 90 tpy of NOx is missing from FGFACILITY. An opt-out limit for NOx would not be necessary if the hourly restrictions on the boilers had been kept. Also, the sulfur content of the fuel oil was reduced to 0.0015% by weight which reduces potential emissions of SO₂ to 4.0 tpy. This is well below the thresholds for Title V but an SO₂ emission limit of 4.0 tpy was put in the permit with associated records. This limit and records are not necessary as emissions of SO₂ are properly restricted through the usage of low sulfur fuel. The mass limit for SO₂ and the associated recordkeeping requirements to calculate the mass emissions on a 12-month rolling period could be removed from the permit.

Departure:

No violations or concerns were identified at the time of inspection pending future verification. Records not obtained during the inspection were to be emailed. I departed the facility at approximately 1:00 PM.

Review of Federal Regulations:

The following is a review of federal standards that may apply to the boilers and the diesel fuel-fired emergency engines at the facility. Listed are the applicability and/or definitions from each standard below.

For the dual fuel-fired boilers (EUBOILER1, EUBOILER2, EUBOILER3), they are subject to 40 CFR 60, Subpart Dc and possibly 40 CFR 63, Subpart JJJJJJ if they can't meet the definition of a gas-fired boiler.

40 CFR 60, Subpart Dc—Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units

§60.40c Applicability and delegation of authority.

(a) Except as provided in paragraphs (d), (e), (f), and (g) of this section, the affected facility to which this subpart applies is each steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989 and that has a maximum design heat input capacity of 29 megawatts (MW) (100 million British thermal units per hour (MMBtu/hr)) or less, but greater than or equal to 2.9 MW (10 MMBtu/hr).

§60.42c Standard for sulfur dioxide (SO₂).

(d) On and after the date on which the initial performance test is completed or required to be completed under §60.8, whichever date comes first, no owner or operator of an affected facility that combusts oil shall cause to be discharged into the atmosphere from that affected facility any gases that contain SO₂ in excess of 215 ng/J (0.50 lb/MMBtu) heat input from oil; or, as an alternative, no owner or operator of an affected facility that combusts oil shall combust oil in the affected facility that contains greater than 0.5 weight percent sulfur. The percent reduction requirements are not applicable to affected facilities under this paragraph.

The sulfur content of the fuel oil used at the facility is 0.0015 % by weight meeting the requirements of 40 CFR 60, Subpart Dc.

40 CFR 63, Subpart JJJJJJ—National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources

§63.11195 Are any boilers not subject to this subpart?

The types of boilers listed in paragraphs (a) through (k) of this section are not subject to this subpart and to any requirements in this subpart....

(e) A gas-fired boiler as defined in this subpart.

§63.11237 What definitions apply to this subpart?

Gas-fired boiler includes any boiler that burns gaseous fuels not combined with any solid fuels and burns liquid fuel only during periods of gas curtailment, gas supply interruption, startups, or periodic testing on liquid fuel. Periodic testing of liquid fuel shall not exceed a combined total of 48 hours during any calendar year.

The three (3) dual fuel-fired boilers (EUBOILER1, EUBOILER2, and EUBOILER3) appear to meet the definition of gas-fired boiler. Each boiler operates on fuel oil for 0.5 hour per month for a total of 6 hours per year for reliability testing purposes. The usage of fuel oil is below 48 hours per calendar year, and therefore, the boilers do not appear to be subject to the requirements of 40 CFR 63, Subpart JJJJJJ. Records of fuel oil usage in the boilers will need to be maintained to demonstrate the boilers meet the definition of gas-fired.

For the emergency engines (EUEMERGENG1, EUEMERGENG2) and the fire pump engine (EUEMERGENG4) with manufacture dates of 1995, they are not subject to 40 CFR 60, Subpart IIII. For EUEMERGENG3, listed is the applicability below for future reference.

40 CFR 60, Subpart IIII—Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

§60.4200 Am I subject to this subpart?

(a) The provisions of this subpart are applicable to manufacturers, owners, and operators of stationary compression ignition (CI) internal combustion engines (ICE) and other persons as specified in paragraphs (a)(1) through (4) of this section. For the purposes of this subpart, the date that construction commences is the date the engine is ordered by the owner or operator....

(2) Owners and operators of stationary CI ICE that commence construction after July 11, 2005, where the stationary CI ICE are:

- (i) Manufactured after April 1, 2006, and are not fire pump engines, or
- (ii) Manufactured as a certified National Fire Protection Association (NFPA) fire pump engine after July 1, 2006.

EUEMERGENG3 was manufactured in 2012 and appears subject to the requirements of 40 CFR 60, Subpart IIII.

Also, as discussed when on-site, 40 CFR 63, Subpart ZZZZ does not apply because RICE located at an institution are not subject per 40 CFR 63.6585(f).

40 CFR 63, Subpart ZZZZ—National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

§63.6585 Am I subject to this subpart?

You are subject to this subpart if you own or operate a stationary RICE at a major or area source of HAP emissions, except if the stationary RICE is being tested at a stationary RICE test cell/stand....

(f) The emergency stationary RICE listed in paragraphs (f)(1) through (3) of this section are not subject to this subpart. The stationary RICE must meet the definition of an emergency stationary RICE in §63.6675, which includes operating according to the provisions specified in §63.6640(f).....

(3) Existing institutional emergency stationary RICE located at an area source of HAP emissions that do not operate or are not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii) and that do not operate for the purpose specified in §63.6640 (f)(4)(ii).

Records Review:

Mr. Cruzen emailed the requested records and revised EtO Emission Control System Test Report.

For PTI 41-15, records of NOx emissions from the boilers and facility-wide SO₂ emissions on a 12-month rolling time period are required. The records indicated compliance with the permit limits of 60 tpy of NOx and 4.0 tpy of SO₂ on a 12-month rolling time period.

Emissions of NOx for FGDUALFUELBOILER

Data (Month- yr)	Natural gas usage (mcf)	Fuel Oil Usage (10 ³ gallon)	NOx Emissions (tons/ month)	NOx Emissions (tons per 12-month)
Nov-14	11185	0.117	0.56	
Dec-14	13846	0.117	0.69	
Jan-15	15853	0.117	0.79	
Feb-15	15096	0.117	0.76	
Mar-15	14280	0.117	0.72	
Apr-15	11170	0.117	0.56	
May-15	8975	0.117	0.45	
Jun-15	8503	0.117	0.43	
Jul-15	6733	0.117	0.34	
Aug-15	6661	0.117	0.33	
Sep-15	7529	0.117	0.38	
Oct-15	9085	0.117	0.46	6.5

* AP-42, Tables 1.4-1 and 1.4-2, NOx emission factor (EF)
= 100 lb/10⁶ cf

** AP-42, Table 1.3-1, NOx EF = 24 lb/10³ gal

Facility-wide total emissions of SO₂

Data	Natural gas usage	Fuel Oil Usage	SO ₂ Emission	SO ₂ Emissions

Month-yr	(mcf)	(10 ³ gallon)	(tons/month)	(tons per 12-month)
Nov-14	11185	0.4475	0.0034	
Dec-14	13846	0.4475	0.0042	
Jan-15	15853	0.4475	0.0048	
Feb-15	15096	0.4475	0.0046	
Mar-15	14280	0.4475	0.0043	
Apr-15	11170	0.4475	0.0034	
May-15	8975	0.4475	0.0027	
Jun-15	8503	0.4475	0.0026	
Jul-15	6733	0.4475	0.0021	
Aug-15	6661	0.4475	0.0020	
Sep-15	7529	0.4475	0.0023	
Oct-15	9085	0.4475	0.0028	0.04

* AP-42, Table 1.4-2, SO₂ = 0.6 lb/10⁶ cf

** AP-42, Table 1.3-1, SO₂ = 142*0.0015 lb/10³ gal

The records provided indicate that the sulfur content of the fuel oil is 0.0015% by weight in compliance with PTI 41-15.

For the EtO sterilizer, permitted EtO emission rates are not to exceed 0.002 lbs/hr and 2.35 lbs/yr on a 12-month rolling basis and no more than 6.4 lbs/day of EtO shall be used in the sterilizer(s). The records provided showed that 60 loads were sterilized for 2015 using EtO. Each load uses one 100 g (0.22 lb) canister of EtO. Only one load is run per day as the cycle time including aeration is 16 hours including 2 hours of contact time with the EtO. So 0.22 lb/day of EtO was used for the 2015 calendar year meeting the permit limit.

EtO emissions were calculated by AQD staff using the tested destruction efficiency (DE) of 96.2% as follows:

EtO emissions per load = 0.22 lb x (1 - 0.962) = 0.0084 lb per load
 EtO emissions per hour = 0.0084 lb per load / 16-hr per load = 0.0005 lb/hr < 0.002 lb/hr
 EtO emissions per year = 0.0084 lb per load x 60 loads (2015) = 0.5 lb/yr < 2.35 lb/yr

So despite the control system operating lower than the permitted DE, no emission rates were exceeded on PTI 399-96.

Summary:

Noncompliance with PTI 399-96 was identified with this inspection. The facility ceased to run the EtO sterilizer after the problem was identified. No emission limits on the permit were exceeded. A violation notice (VN) was sent December 18, 2015 and the resolution to the VN was to permanently cease operation of the sterilizer. PTI 399-96 will be voided as no EtO sterilizers are left at the facility.

Additional concerns were identified with the recordkeeping for PTI 41-15. This opt-out permit was issued June 4, 2015. The facility had the information for the records but had to compile it to fulfill the request for records with this inspection. Also, Genesys may want to modify this permit to remove unnecessary emission limits, and reinstate permit limits that could reduce the recordkeeping requirements.

NAME Julie L. Bunn DATE 1/19/16 SUPERVISOR J.S.M.