Title V Air Operation Permit Revision
Permit No. 0570089-018-AV

APPLICANT

The applicant for this project is St. Joseph's Hospital. The applicant's responsible official and mailing address are: Lorraine Lutton, St. Joseph's Hospital, 3001 W. Martin Luther King, Jr. Blvd., Tampa, FL 33607.

FACILITY DESCRIPTION

The applicant operates a group of medical facilities that includes several combustion sources to support the hospitals, which are located in Hillsborough County at 3001 W. Martin Luther King, Jr. Blvd., Tampa, FL 33607.

This facility (St. Joseph's Hospital) is comprised of a group of medical facilities including St. Joseph's Hospital, St. Joseph's Children's Hospital, and St. Joseph's Women's Hospital. The hospital operations include multiple fuel combustion sources including boilers, natural gas fired generators, emergency generators, hot water heaters, a chiller unit, and a cogenerator.

St. Joseph's Hospital operates three large boilers. Boiler No. 2 is a Cleaver-Brooks, Model No. CB200-300, with a maximum heat input rate of 12.55 MMBTU/hr. Boiler Nos. 3 and 4 are Kewanee, Model No. Classic III Scotch Firetube, with a maximum heat input rate of 12.55 MMBTU/hr each. The boilers are fired primarily on natural gas with No. 2 fuel oil as a backup fuel. Emissions from the boilers are controlled by limits on the fuel usage and sulfur content. These boilers are subject to the requirements from 40 CFR 60 Subpart Dc. However, these boilers are not subject to 40 CFR 63 Subpart JJJJJJ, since they meet the definition of gas-fired boiler in the subpart.

The cogeneration plant consists of a single 16.6 MMBtu/hr Fairbanks-Morse, Model No. 38ETDS8 1/8, Serial No. 38E892003TS1S8, spark ignited, natural gas fired two-stroke internal combustion engine, rated at approximately 2,200 HP. The engine is coupled to a Kato 1,710 KW generator. The exhaust gas and engine jacket water pass through heat exchangers to provide steam to supplement boilers and provide hot water for the hospital domestic use. Emissions from the cogeneration unit are controlled by limiting the type of fuel usage to natural gas. The existing cogenerator is subject to the requirements of 40 CFR 63 Subpart ZZZZ.

The chiller system at the main hospital includes four engines that power four different chiller units. Three of the engines are electrically powered, but the fourth engine is fired on natural gas. It is a 4.8 MMBtu/hr Caterpillar Model G3412C spark-ignited four-stroke internal combustion engine that is lean burn and rated at approximately 675 HP. Emissions are controlled by limiting the type of fuel to natural gas and the addition of a GT Exhaust oxidation catalyst on the engine exhaust. The natural gas-fired chiller engine is subject to the applicable requirements of 40 CFR 63 Subpart ZZZZ.

The two new stationary, natural gas-fired generators are identical Caterpillar, Model No. G3520C, generator sets rated at 2 MW each. The generators are intended to operate as peaking units. The units operate during periods of high electricity demand at the request of the power company in situations that are not emergencies. In addition, the units are able to operate as emergency generators for instances when backup power is necessary due to an interruption in power. Because the units can operate during

non-emergency situations, the generators are considered "non-emergency" generators when considering the applicability of the state and federal rules.

The maximum heat input of each generator is 22.2 MMBtu/hr based on the maximum fuel usage rate provided by the manufacturer. Each unit is equipped with a non-selective catalytic reduction (NSCR) system (Model #SP-ZCSI-54x61-20/24-XH2.5B3) on the exhaust portion of the generator to help reduce emissions and ensure compliance with the exhaust limits from the federal rules. The generators are subject to 40 CFR 60 Subpart JJJJ and 40 CFR 63 Subpart ZZZZ.

The four new diesel fired emergency generators are identical Caterpillar, Model No. DM8266, generator sets rated at 2.5 MW each. Each engine associated with the generator set is an identical Caterpillar, Model No. 3516C, engine with a maximum rating of 3,634 HP. The generators are intended to operate exclusively as emergency generators for instances when backup power is necessary due to an interruption in power. Therefore, the generators are considered "emergency" generators when considering the applicability of the state and federal rules. The generators are subject to 40 CFR 60 Subpart IIII. Also, these engines are not subject to the 40 CFR 63 Subpart ZZZZ pursuant to 40 CFR 63.6590(c)(1) since they are classified as a new stationary RICEs located at an area source of HAP, and are only required to meet with the requirements of 40 CFR 60 Subpart IIII.

Also located at the facility is a medical waste processing/sanitation system known as the Vanish System. This system operates by grinding the medical waste in an internal chamber and thereby exposing the waste to temperatures between 275°F - 325°F. The waste material's volume is significantly reduced during the process. The shredded material exits the system and is considered sanitized per the Florida Department of Health guidelines and is no longer required to be handled as a medical waste. There is no combustion occurring as part of the waste processing system, and the unit is electrically-powered. The finished product is hauled off-site as needed for disposal. The system was determined to be exempt from air permitting on April 3, 2008 and is included in the permit as part of Appendix I (List of Insignificant Emission Units).

Also included in this permit are other miscellaneous unregulated/exempt emissions units and/or activities.

PROJECT DESCRIPTION

The purpose of this permitting project is to revise the existing Title V permit to incorporate operation of the two new stationary, natural gas-fired, Caterpillar, Model No. G3520C, generator sets. This permit also incorporates operation of four new diesel fired Caterpillar, Model No. DM8266, emergency generator sets.

PROCESSING SCHEDULE AND RELATED DOCUMENTS

Title V Air Operation Permit No. 0570089-014-AV issued January 29, 2008
Title V Air Operation Permit No. 0570089-016-AV issued June 25, 2013
Application for a Title V Air Operation Permit Revision received September 20, 2013

PRIMARY REGULATORY REQUIREMENTS

Title III: Based on the Title V permit renewal application received on September 20, 2013, this facility is not a major source of hazardous air pollutants (HAPs).

Title V: The facility is a Title V major source of air pollution in accordance with Chapter 62-213, Florida Administrative Code (F.A.C.).

PSD: The facility is not a Prevention of Significant Deterioration (PSD)-major source of air pollution in accordance with Rule 62-212.400, F.A.C.

NSPS: The facility does operate units subject to the New Source Performance Standards (NSPS) of 40 Code of Federal Regulations (CFR) 60. The boilers are subject to 40 CFR 60 Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. The two new stationary, natural gas-fired generators are subject to 40 CFR 60 Subpart JJJJ - Standards of Performance for Stationary Spark Ignition Internal Combustion Engines. The new emergency generators are subject to 40 CFR 60 Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines.

NESHAP: The facility does operate units subject to the National Emissions Standards for Hazardous Air Pollutants (NESHAP) of 40 CFR 63. The cogenerator, natural gas-fired chiller engine, and the natural gas-fired generators are subject to 40 CFR 63 Subpart ZZZZ - Stationary Reciprocating Internal Combustion Engines.

CAIR: The facility is not subject to the Clean Air Interstate Rule (CAIR) set forth in Rule 62-296.470, F.A.C.

CAM: Compliance Assurance Monitoring (CAM) does not apply to the facility.

PROJECT REVIEW

The revision permit updated several portions of the permit as follows:

1) The Facility Description and Section III. – Emission Unit Conditions of the permit were updated to include the two new stationary, natural gas-fired generators (EU Nos. 009 and 010) and the four new diesel fired emergency generators (EU No. 013).
2) The Cummings, Model QSK60-G6, emergency generator and the two Caterpillar, Model 3512, emergency generators have been removed from the facility. Therefore, these emission units (EU Nos. 012) have been removed from the permit.
3) In order to comply with 40 CFR 63 Subpart ZZZZ, a GT Exhaust, Model No. OX5314, oxidation catalyst has been installed on the chiller engine (EU No. 011). The process description has been updated to include information about the catalyst. In addition, the specific condition that referenced an extension of the deadline to install the catalyst has been removed from the permit because the condition is obsolete.

CONCLUSION

This project revises Title V air operation permit No. 0570089-016-AV, which was issued on June 25, 2013. This Title V Air Operation Permit renewal is issued under the provisions of Chapter 403, Florida Statues (F.S.), and Chapters 62-4, 62-210 and 62-213, F.A.C.