

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

P070940044

FACILITY: SUPERNAP GRAND RAPIDS, LLC		SRN / ID: P0709
LOCATION: 6100 E PARIS AVENUE, GRAND RAPIDS		DISTRICT: Grand Rapids
CITY: GRAND RAPIDS		COUNTY: KENT
CONTACT: Brandie Koehler, Director of Maintenance Administration		ACTIVITY DATE: 05/31/2017
STAFF: April Lazzaro	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MINOR
SUBJECT: Unannounced, scheduled inspection.		
RESOLVED COMPLAINTS:		

Staff, April Lazzaro arrived at the facility on May 16th, 2017 to conduct an unannounced, scheduled inspection and met with Jim Faunce, VP of Construction. It was determined that while a preliminary inspection would be conducted today, we would reschedule so that we could be accompanied by Brandie Koehler, Director of Maintenance and Administration who is geographically located in Las Vegas, Nevada. A brief site overview was provided by Mr. Faunce, and it was noted that three new emergency generators had been installed, and trial operation had commenced.

On May 31st, 2017 a follow-up inspection was conducted. This allowed Ms. Koehler to be present and to be able to provide more specific information on environmental compliance at the facility. Both Ms. Koehler and Mr. Faunce were present for the opening meeting as well as the compliance discussions regarding the permit requirements and how to ensure recordkeeping meets the requirements.

FACILITY DESCRIPTION

This facility is owned by Switch, a privately held company housed in Las Vegas, Nevada. Switch has invented and developed the SUPERNAP concept of data storage center facilities around the world. The Grand Rapids SUPERNAP is housed in the former Steelcase Pyramid which has undergone extensive repurposing for the company's needs. Eventually, the property will house additional facilities as they continue to obtain clients and buildout additional capacity for data storage. Due to the fact that Switch ensures data reliability, and 100% back up protection of data and systems, the power must also be reliable. A three tier back up system exists for redundancy. First, power is supplied by the electrical grid. If there were power interruption, there is battery power back up on-site. Lastly, the company can also utilize a diesel fired generator. As previously indicated, three of the engines have been installed thus far. As the facility grows, the plan is to install three units at a time, with six in a block. These engines will not be used for peak shaving, and are not permitted for that use. This was discussed, and confirmed with Ms. Koehler.

The facility operates pursuant to two Air Quality Division (AQD) permits. These include Permit to Install (PTI) No. 91-16, which covers three existing 1,750 kilowatt diesel fueled emergency generators that were installed in 1989. No changes to these generators have been conducted by SUPERNAP. PTI No. 112-16 covers a total of 60, 3,010 kilowatt diesel fired emergency engines and associated belly tanks and 36 cooling towers, equipped with drift eliminators to control particulate in the water droplets. The potential to emit (PTE) allowed by PTI No. 91-16 for NOx is 163 tons per year. The PTE of NOx for all other equipment at the facility is reported at 11.95 tons. The other equipment includes a 150 HP fire pump installed in 1986 and three small boilers. This means that when enough emergency engines are installed, the facility will become a Category I major source of NOx. This will occur once installation for the 33rd emergency engine has commenced. At that point, the company will have 12-months to complete and submit a Title V permit application. This was discussed with Ms. Koehler and Mr. Faunce. The facility should calculate the PTE of NOx for existing equipment, and add that value to the allowable limit of 163 tons per year to determine exactly at what point during the continued growth of the facility the PTE exceeds the 100 ton major source threshold.

COMPLIANCE EVALUATION

PTI No. 91-16

Three 1,750 kilowatt diesel-fueled emergency engines, that are not subject to federal standards.

Flexible Group: FGEG1-3

The permittee is limited to burn only ultra low sulfur diesel fuel in any engine. Ultra low sulfur diesel fuel is defined as having a maximum sulfur content of 15 ppm (0.0015 percent) by weight. Ms. Koehler was able to provide both the bill of lading as well as test results for sulfur content. The Safety Data Sheet provided states that the sulfur content of the fuel at this facility is <0.0015%.

These engines are limited to a total of 105 hours per year on a 12-month rolling time period as determined at the end of each calendar month. Emissions data provided indicated that the 12-month rolling hours of operation through April 2016 for EUEG1 are 7.30 hours, EUEG2 are 2.80 hours and EUEG3 are 2.70 hours. Each unit is equipped with a non-resettable hours meter as required. Due to the fact that the engine design capacity is the maximum rated power output, that value cannot be exceeded.

PTI No. 112-16

Flexible Group: FGENGINES4-63

Sixty 3,010 kilowatt diesel-fueled emergency engines that are subject to 40 CFR Part 60 Subpart ZZZZ. The compliance requirements of Subpart ZZZZ states that you must be in compliance with 40 CFR Part 60 Subpart IIII. As previously indicated, three engines are currently installed at this time.

EMISSION LIMITS

These engines are subject to emission limitations on a per engine basis. The emission limitations that are based on g/kW-hr, and apply to certified engines. Engine certification is an EPA designation that ensures that the engines have been built to ensure emissions meet the limitations by design. Ms. Koehler provided the 2016 EPA Engine Conformity sheet, which is attached. Basically, the facility must operate the engines in accordance with the manufacturer's recommendations to ensure compliance. These engines are not subject to notification requirements of the NSPS IIII, however Ms. Koehler has kept AQD informed of the status of the units by providing notifications. The mass emission limit for NOx is based on the emission factors as established through the permit review process. The number used in the application was 7.80 g/kW-hr which is higher than the NSPS limit. However, since the NSPS limit is for certified engines and the company is not required to install a certified engine, the calculations were based on the manufacturer's guarantee. Based on the Engine Model Number, I was able to determine that these are in fact EPA Certified Engines, therefore are considered in compliance with the emission limits established pursuant to the NSPS.

The mass emission rate for NOx is 163 tons per 12-month rolling time period as determined at the end of the month. The engines have not operated for 12-months and as such 12-month time period does not yet apply. The reported emissions for the month of April 2017 are 564.19 pounds of NOx.

MATERIAL LIMITS

As previously indicated, the permittee provided SDS's to demonstrate compliance with the sulfur content limit of 15 ppm.

PROCESS/OPERATIONAL RESTRICTIONS

The permittee is documenting the hours of operation, and the reason for operation in a log book located within the generator set building. This information correlates with the non-resettable hours meter on the engine itself. Additionally, a spreadsheet is maintained with the 12-month rolling average hours of operation. Current hours of operation are less than 4 hours for the month of April 2017.

SUPERNAP understands the need to maintain the engines according to the manufacturer's emission-related written instructions and change only those emission-related settings that are permitted by the manufacturer.

We discussed how the facility would demonstrate how they will not operate each engine at more than 75% load averaged over a clock hour. This is relevant because due to the redundancy power requirements, they conduct an annual load bank test. A 'bank' is a grouping of 6 engines. Basically, they will track the kilowatts of energy generated per minute, then use the data to determine the clock hour average. The system is designed to operate at a maximum load of 66%, as to ensure adequate power supply to all customers.

DESIGN/EQUIPMENT PARAMETERS

These engines are equipped with a non-resettable hours meter and were observed to be rated at 3,010 kW.

TESTING/SAMPLING

Due to the fact that these engines are certified engines, no testing is required. However, if they are changed in a way that is not permitted by the manufacturer, testing will be required.

MONITORING/RECORDKEEPING

The permittee is maintaining all required records in a satisfactory manner, which was available immediately. See attached records.

REPORTING

The facility has installed three engines, which is one half of an "organizational unit" as defined in the permit language. Notification of installation for these three engines has been received.

STACK/VENT RESTRICTIONS

The engine stacks were not measured at the time of the inspection.

OTHER REQUIREMENTS


The permittee appeared to be in compliance with 40 CFR Part 60 Subparts A and IIII, as well as 40 CFR Part 63 Subpart ZZZZ.

Flexible Group: FGCOOLTWRS6-41

36 cooling towers each equipped with drift eliminators to control particulate in water droplets. None of the permitted cooling towers have been installed yet, as such the requirements of this flexible group are not applicable. However, it was discussed that the permittee shall submit an inspection and maintenance program for all cooling towers within 180 days after startup of the first tower.

COMPLIANCE SUMMARY

At the time of the inspection, SUPERNAP Grand Rapids, LLC was in compliance.

NAME 

DATE 6-5-17

SUPERVISOR 