ALLEGHENY COUNTY HEALTH DEPARTMENT
AIR QUALITY PROGRAM

May 29, 2013

SUBJECT: **UPMC Forbes Tower**
3600 Forbes Avenue
Pittsburgh, PA 15213
Allegheny County

Operating Permit No. 0832

TO: Sandra L. Etzel
Chief Engineer

FROM: Melissa Jativa
Air Quality Engineer

FACILITY DESCRIPTION:

UPMC Forbes Tower is an 11 floor office structure. The source consists of four (4) emergency generators, two (2) cooling towers, and four (4) fuel oil storage tanks. These generators are No. 2 fuel oil-fired and each vent to a separate stack.

This facility is a synthetic minor source of nitrogen oxides (NO_X), and a minor source of particulate matter (PM), particulate matter <10 µm in diameter (PM_{10}), particulate matter <2.5 µm in diameter ($PM_{2.5}$), sulfur dioxide (SO_2), carbon monoxide (CO), and volatile organic compounds (VOCs) as defined in §2101.20 of Article XXI. The facility is also a minor source of greenhouse gas emissions (CO_2e) as defined in the U.S. EPA Greenhouse Gas Tailoring Rule.

PERMIT APPLICATION COMPONENTS:

1. Operating Permit application #0832, dated April 6, 2011
2. Correspondence, dated November 16, 2011
3. Installation Permit application #0832-I001, dated August 30, 2012

EMISSION SOURCES:

Emissions Sources

I.D.	SOURCE DESCRIPTION	CONTROL DEVICE(S)	MAXIMUM CAPACITY	FUEL/RAW MATERIAL	STACK I.D.
P001	Life Safety Emergency Generator – Lighting and Elevator Cummins Model DFEK-5861847	Uncontrolled	500 kW (671 hp)	No. 2 Fuel Oil	S001
P002	Information Services Division Emergency Generator B-1 Kohler 2000REOZDC	Uncontrolled	2,280 kW (3,058 hp)	No. 2 Fuel Oil	S002
P003	Information Services Division Emergency Generator A-1 Caterpillar 3508BDITA	Uncontrolled	1,000 kW (1,341 hp)	No. 2 Fuel Oil	S003
P004	Information Services Division Emergency Generator A-2 Cummins 1000DQFAD	Uncontrolled	1,000 kW (1,341 hp)	No. 2 Fuel Oil	S004
P005	Two (2) Evaporative Cooling Towers	Uncontrolled	6 gal/min	-	-
T001 – T004	Four (4) Fuel Oil Storage Tanks	Uncontrolled	1,000 – 4,000 gallons	No. 2 Fuel Oil	-

METHOD OF DEMONSTRATING COMPLIANCE:

Compliance with this permit for the generators will be demonstrated by maintaining records of fuel use and hours of operation as well as supplier certification of sulfur content.

See Operating Permit No. 0832 for the specific conditions for determining compliance with the applicable requirements. Compliance with the short-term (lb/hr) limits must be maintained at all times, including startup and shutdown. Any emissions due to startup, shutdown, or malfunction are included in facility's total annual emissions.

EMISSION CALCULATIONS

Emergency Generator Emissions Calculations

Generator Rating:	500 - 2,280 kW
Maximum Bhp:	671 - 3,058 hp
No. of Generators:	4 (four)
Fuel Oil Sulfur Limit:	0.015%
Operation:	500 hrs/yr

Emissions for all pollutants are based on data supplied by the manufacturer (see permit application #0832). Because particulate matter and sulfur oxide emissions based on manufacturer information are less than the limits in Article XXI, §2104.02(a)(1)(B) and §2104.03(a)(2)(A), the Article XXI limits have been streamlined into the manufacturer's limits. All PM is assumed to be PM_{10}; all PM_{10} is assumed to be $PM_{2.5}$. Appendix A includes detailed emission calculations for the generators.

The emission limits for the emergency generators are as follows:

Emergency Generator Short Term Emission Limits

Emission Unit ID	PM (lb/hr)	PM10 (lb/hr)	SO_2 (lb/hr)	NOx (lb/hr)	VOC (lb/hr)	CO (lb/hr)
P001	0.07	0.07	0.01	7.2	0.16	0.46
P002	0.37	0.37	0.04	34.8	0.67	4.02
P003	0.30	0.30	0.02	25.7	0.91	1.63
P004	0.36	0.36	0.02	12.9	0.23	2.15
Total	1.10	1.10	0.09	80.65	1.98	8.26

Emergency Generator Long Term Emission Limits

Emission Unit ID	PM (tpy) [1]	PM10 (tpy) [1]	SO_2 (tpy) [1]	NOx (tpy) [1]	VOC (tpy) [1]	CO (tpy) [1]
P001	0.02	0.02	0.002	1.79	0.04	0.11
P002	0.09	0.09	0.011	8.71	0.17	1.00
P003	0.08	0.08	0.005	6.44	0.23	0.41
P004	0.09	0.09	0.005	3.22	0.06	0.54
Total	0.28	0.28	0.02	20.16	0.49	2.06

[1] A year is defined as any 12 consecutive months.

Diesel Fuel Storage Tanks

VOC emissions from the diesel fuel storage tanks are negligible (< 0.0005 tpy) using Tanks 4.0.9D.

Evaporative Cooling Towers

PM emissions from the evaporative cooling towers are negligible (< 0.005 tpy).

REGULATORY APPLICABILITY:

1. **Article XXI Requirements for Issuance:**
   See Permit Application No. 0832-I001, Section 5 and Appendix 4, Table 6. The requirements of Article XXI, Parts B and C for the issuance of minor source operating permits have been met for this facility. Article XXI, Part D, Part E & Part H will have the necessary sections addressed individually.

   §2103.12.a.2.B (Standards for Issuance): Existing sources, where no limits have been established under Article XXI, are subject to Reasonably Available Control Technology (RACT) requirements. In this case, RACT will be consistent with the BACT determination performed at the time of IP 0832-I001 issuance.

   a. The Department has determined that RACT/BACT shall be:

      a. The use of ultra low sulfur fuel oil with 15 ppm sulfur content.

2. **Testing Requirements:**
   No testing is required on the emergency generators. However, the Department reserves the right to require testing if necessary in the future to assure compliance with the terms and conditions of this Operating Permit.

3. **New Source Performance Standards (NSPS):**
The emergency generators P001, P002, and P004 are subject to 40 CFR Part 60, Subpart IIII – *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines*. The date the generators were ordered is after the date April 1, 2006 at §60.4200(a)(2)(i) making the generators subject to 40 CFR Part 60, Subpart IIII. Emergency generator P003 is not subject to 40 CFR Part 60, Subpart IIII as it was manufactured and installed prior to April 1, 2006.

4. **NESHAP and MACT Standards:**
The emergency generators P001, P002, and P004 are subject to 40 CFR Part 63, Subpart ZZZZ – *National Emissions Standards for Stationary Reciprocating Internal Combustion Engines*. However, per §63.6595(c), the generator meets the requirements of this subpart by meeting the requirements of 60 CFR Part 60, Subpart IIII, and no further requirements of Part 63, Subpart ZZZZ apply.

5. **Risk Management Plan; CAA Section 112(r):**
The facility is not required to have a risk management plan at this time because none of the regulated chemicals exceed the thresholds in the regulation.

EMISSIONS SUMMARY:
Annual emissions from the Emergency Generators at UPMC Forbes Tower shall not exceed the following at any time:

Pollutant	Annual Emission Limit (tons/year)*
Particulate Matter	0.28
PM_{10}	0.28
$PM_{2.5}$	0.28
Nitrogen Oxides (NO_X)	20.16
Sulfur Oxides (SO_X)	0.02
Carbon Monoxide (CO)	2.06
Volatile Organic Compounds (VOC)	0.49

* A year is defined as any consecutive 12-month period.

RECOMMENDATION:

All applicable Federal, State, and County regulations have been addressed in the permit application and the facility was found to be in compliance. The operating permit for UPMC Forbes Tower should be approved with the emission limitations and terms & conditions in Operating Permit No. 0832.