

# ALLEGHENY COUNTY HEALTH DEPARTMENT AIR QUALITY PROGRAM

April 9, 2012

**SUBJECT:** Education Management LLC  
615 McMichael Road  
Robinson Township, PA 15205  
Allegheny County

## **Synthetic Minor Operating Permit No. 0819**

**TO:** Sandra L. Etzel  
Chief Engineer

**FROM:** JoAnn Truchan  
Air Quality Engineer

### **FACILITY DESCRIPTION:**

Education Management Corporation (EDMC) provides private post-secondary education in the form of schools such as the Art Institute of Pittsburgh. EDMC maintains offices and a data center at 615 McMichael Road, in Robinson Township. The data center has a 2,919 hp diesel fuel-fired emergency generator to provide back-up in the event of a power failure.

This facility is a synthetic minor source of minor source of nitrogen oxides (NO<sub>x</sub>), and a minor source of particulate matter (PM), particulate matter <10 µm in diameter (PM<sub>10</sub>), particulate matter <2.5 µm in diameter (PM<sub>2.5</sub>), sulfur dioxide (SO<sub>2</sub>), carbon monoxide (CO), and volatile organic compounds (VOCs) as defined in §2101.20 of Article XXI.

### **PERMIT APPLICATION COMPONENTS:**

1. Operating Permit application #0819, dated October 18, 2010
2. Inspection Report, dated February 8, 2012

### **EMISSION SOURCES:**

<b>ID.</b>	<b>Source Description</b>	<b>Control Device(s)</b>	<b>Maximum Capacity</b>	<b>Fuel / Raw Material</b>	<b>Stack I.D.</b>
B001	Emergency Generator – Cummins QSK60-G6 NR2	turbocharged/aftercooled; ultra-low sulfur diesel	2,919 hp	No. 2 Fuel Oil	S001
D001	Diesel Fuel Storage Tank	none	6,000 gallons	No. 2 Fuel Oil	--

### **METHOD OF DEMONSTRATING COMPLIANCE:**

Compliance with the emission standards set in this permit will be demonstrated by maintaining records of generator operation and fuel use as well as supplier certification of fuel oil sulfur content. See operating permit No. 0819 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 unless explicitly stated otherwise in the permit. Any emissions due to startup and/or shutdown are included in facility's total annual emissions.

**EMISSION CALCULATIONS**

**Basis:**

Generator Rating:	2,919 hp (maximum, at full standby)
Fuel Use (100%):	141.3 gal/hr
Fuel Oil Rating:	140,000 Btu/gal
Fuel Oil Density:	8.049 lb/gal
Fuel Oil Sulfur Limit:	0.05%
Operation:	500 hrs/yr

Emissions for all pollutants are based on data supplied by the manufacturer (see permit application #0819-I001, Attachment 4). 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<sub>10</sub>; all PM<sub>10</sub> is assumed to be PM<sub>2.5</sub>.

Article XXI:  $0.28 \text{ lb}_{\text{PM}}/\text{MMBtu} \times 141.3 \text{ gal/hr} \times 140,000 \text{ Btu/gal} \div 10^6 \text{ Btu/MMBtu} = 5.54 \text{ lb}_{\text{PM}}/\text{hr}$   
 $1.0 \text{ lb}_{\text{SOx}}/\text{MMBtu} \times 141.3 \text{ gal/hr} \times 140,000 \text{ Btu/gal} \div 10^6 \text{ Btu/MMBtu} = 19.78 \text{ lb}_{\text{SOx}}/\text{hr}$

Emission limits were based on BACT (§2102.04(b)(6)), which in this case are the numbers supplied by the manufacturer. The maximum emission for each pollutant was used. Maximum for PM was at ½ standby; maximum for all other pollutants was at full standby. These numbers meet the Tier 2 standards of 40 CFR §89.112 except for NO<sub>x</sub>, which at full standby is listed at 32.88 lb/hr. For NO<sub>x</sub>, the Tier 2 number was used.

**40 CFR §89.112 Tier 2 Limits**

	PM	NO <sub>x</sub>	CO	HC
<b>Tier 2 Limit (lb/hr)</b>	0.96	29.37	16.87	1.54

The emission limits for the emergency generator are as follows:

**Emergency Generator Emission Limits**

Pollutant	Manufacturer Emissions (lb/hr)	Long-Term Emissions (tons/year)
Particulate Matter	0.386	<b>0.097</b>
PM <sub>10</sub>	0.386	<b>0.097</b>
PM <sub>2.5</sub>	0.386	<b>0.097</b>
Nitrogen Oxides	29.37	<b>7.343</b>
Sulfur Oxides	0.644	<b>0.161</b>
Carbon Monoxide	1.351	<b>0.338</b>
Volatile Organic Compounds	1.480	<b>0.370</b>

**Diesel Fuel Storage Tank**

The diesel fuel storage tank is a 40 ft × 11.75 ft × 1.92 ft rectangular tank located under the generator platform. The actual tank is smaller than the dimensions (as a spill control measure) and has a capacity of 6,000 gallons. Emissions from the Diesel Fuel Storage Tank were estimated using the EPA TANKS 4.0.9d program on vertical and horizontal fixed-roof tanks of similar capacity. In each case, potential emissions were less than 0.001 tons/year of VOC, and are deemed insignificant.

**REGULATORY APPLICABILITY:**

1. **Article XXI Requirements for Issuance:**

See Permit Application No. 0819, Section 5: Applicable Requirements. The requirements of Article XXI, Parts B and C for the issuance of minor modification installation permits have been met for this facility. Article XXI, Part D, Part E & Part H will have the necessary sections addressed individually.

2. **Testing Requirements:**

No testing is required for this facility. The Department reserves the right to require additional 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 generator is subject to 40 CFR Part 60, Subpart IIII – *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines*.

4. **NESHAP and MACT Standards:**

The emergency generator is 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:**

**Emissions Summary for Education Management LLC (EDMC)  
Robinson Township Facility**

<b>Pollutant</b>	<b>Total (tpy<sup>*</sup>)</b>
Particulate Matter	<b>0.097</b>
Particulate Matter <10 µm	<b>0.097</b>
Particulate Matter <2.5 µm (PM <sub>2.5</sub> )	<b>0.097</b>
Nitrogen Oxides (NO <sub>x</sub> )	<b>7.343</b>
Sulfur Oxides (SO <sub>x</sub> )	<b>0.161</b>
Carbon Monoxide (CO)	<b>0.338</b>
Volatile Organic Compounds (VOC)	<b>0.370</b>

\* 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 is not in violation of the provisions of Article XXI, §2102.04.k. The Synthetic Minor Source Operating Permit for the Education Management Corporation (EDMC) data center in Robinson Township should be approved with the emission limitations, terms and conditions in Permit No. 0819.