ALLEGHENY COUNTY HEALTH DEPARTMENT
AIR QUALITY PROGRAM

December 28, 2011

SUBJECT: **Sinclair Media I, Inc.**
750 Ivory Ave
Pittsburgh, PA 15214-1606
Allegheny County

Synthetic Minor Source Operating Permit No. 0815

TO: Sandra L. Etzel
Chief Engineer

FROM: David D. Good
Air Quality Engineer

FACILITY DESCRIPTION

Sinclair Media is a television broadcasting company. The company operates and maintains a 1,000 kW emergency generator enrolled in PJM's Emergency Load Response Program ("ELRP") for its stations at 750 Ivory Avenue in Pittsburgh, PA.

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.

PERMIT APPLICATION COMPONENTS:

1. Operating Permit Application No. 0815, dated March 15, 2010 (application was for both the installation and operating permit).
2. BACT Analysis for a 1,000 kW Generator.

EMISSION SOURCES:

Generator & Tanks

I.D.	Facility Name	Manufacturer / Model #	Maximum Capacity	Primary Fuel	Secondary Fuel	Control	Stack I.D.
B001	Emergency Generator	Caterpillar 3505B Genset	1,000 kW	No. 2 Fuel Oil	none	none	S001
D001	Diesel Fuel Storage Tank	--	1,500 gallons	No. 2 Fuel Oil	none	none	--
Misc. 001	Boiler #1	AO. Smith DB840S120	0.840 mmBTU/hr	Natural Gas	none	none	--
Misc. 002	Boiler #2 (backup)	Burnham Corp 809B-WI	0.528 mmBTU/hr	Natural Gas	none	none	--

Stacks

Stack I.D.	Stack Height	Stack Diameter	Exhaust Rate	Exhaust Temp.	Exhaust Moisture	Material
S001	13 ft.	1.0 ft.	7,321 acfm	720 °F	--	steel; n/a

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 sulfur content. See Operating Permit No. 0815 for the specific conditions for determining compliance with the applicable requirements.

REGULATORY APPLICABILITY:

1. **Article XX1 Requirements for Issuance:**
   See Permit Application No. 0815, Section 5: Applicable Requirements. 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.

   a. The Department has determined that RACT shall be:

      - The use of ultra low sulfur fuel oil with 15 ppm sulfur content, low usage option and good combustion practice.

2. **Testing Requirements:**
   Testing is not required. However, the Department reserves the right to require additional testing if necessary in the future to assure compliance with the terms and conditions of Operating Permit No. 0815.

3. **New Source Performance Standards (NSPS):**
   The facility is not subject to 40 CFR Part 60, Subpart IIII – *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines*. The generator was installed in 2004, before the applicability date of the NSPS.

4. **NESHAP and MACT Standards:**
   The facility is not subject to any NESHAP or MACT standards. 40 CFR Part 63, Subpart ZZZZ does not apply to this facility based on §63.6590(b)(3) which states: "…or an existing stationary residential, commercial, or institutional emergency stationary RICE located at an area source of HAP emissions, does not have to meet the requirements of this subpart and of subpart A of this part.".

5. **Risk Management Plan; CAA Section 112(r):**
   No materials stored at the facility meet the threshold for CAA §112(r). Therefore, the facility is not subject to CAA §112(r).

EMISSIONS CALCULATIONS:

Emergency Generator

Generator Rating:	1,000 kW (1,480 hp)
Fuel Use:	70.7 gal/hr
No. of Generators:	1 (one)
Fuel Oil Sulfur Limit:	0.0015%
Operation:	500 hrs/yr

Emissions are based on data supplied by the manufacturer (see permit application #0815). Because particulate matter and sulfur oxide emissions based on manufacturer information are less than the limit 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}, and all PM_{10} is assumed to be $PM_{2.5}$.

Article XXI: 0.28 lb_{PM}/MMBtu × 71.35 gal/hr × 130,000 Btu/gal = 2.60 lb_{PM}/hr
2.0 lb_{SOx}/MMBtu × 71.35 gal/hr × 130,000 Btu/gal = 9.27 lb_{SOx}/hr

The manufacturer supplied the following equation for sulfur emissions when combusting ultra low-sulfur diesel:

SO_2 g/hr = 0.01998 × fuel rate (g/hr) × S%

0.01998 × 70.7 gal/hr × 3.79 L/gal × 838.9 g/L × 0.0015 ÷ 453.6 g/lb = **0.015 lb/hr SO_X**

From the manufacturer specifications, the maximum brake horsepower is 1,480 bhp.

Emergency Generator Emission Limits

Pollutant	**Short-Term Emissions** (lb/hr)	**Long-Term Emissions [500 hours/year] (**tons/year**)**
Particulate Matter	0.20	**0.1**
PM_{10}	0.20	**0.1**
$PM_{2.5}$	0.20	**0.1**
Nitrogen Oxides	20.60	**5.2**
Sulfur Oxides	0.01	**0.0025**
Carbon Monoxide	0.84	**0.2**
Volatile Organic Compounds	0.43	**0.1**

Diesel Fuel Storage Tank

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

Boiler #1 & Boiler #2

Emissions from the Boiler #1 are 0.4 tpy of NO_x and 0.3 tpy of CO. Emissions from the Boiler #2 are 0.2 tpy of NO_x and 0.2 tpy of CO. Emissions for the other criteria pollutants of these sources are negligible.

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 Sinclair Media I, Inc. should be approved with the emission limitations and terms & conditions in Operating Permit No. 0815.