

# ALLEGHENY COUNTY HEALTH DEPARTMENT AIR QUALITY PROGRAM

April 11, 2014

**SUBJECT:** Pennsylvania-American Water Company  
Becks Run Raw Water Pump Station  
4122 East Carson Street  
Pittsburgh, PA 15210  
Allegheny County

Operating Permit No. 0830

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

**FROM:** Melissa Jativa  
Air Quality Engineer

## FACILITY DESCRIPTION

Becks Run Raw Water Pump Station is a pump station which pumps untreated water from the Monongahela River to Pennsylvania-American Water Company (PAWC) Hays Mine Water Treatment Plant. The facility operates and maintains two 2,919 hp emergency generators. The generators are each limited to 500 hours per 12-month period and are used only for emergency conditions and routine maintenance testing. The generators only burn low sulfur diesel fuel with a sulfur content of 0.0015%<sub>w</sub> or less.

This facility is a synthetic 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. Installation Permit Application No. 0830-I001, dated March 24, 2011 (application was for both the installation and operating permit).

## EMISSION SOURCES:

### Generators

I.D.	Source Description	Manufacturer / Model #	Maximum Capacity	Primary Fuel	Control	Stack I.D.
B001	Emergency Generator 1	Cummins Inc. QSK60-G6 NR2	2919 hp	No. 2 Fuel Oil	turbocharged/ aftercooled; ultra-low sulfur diesel	S001
B002	Emergency Generator 2	Cummins Inc. QSK60-G6 NR2	2919 hp	No. 2 Fuel Oil	turbocharged/ aftercooled; ultra-low sulfur diesel	S001

## **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. 0830 for the specific conditions for determining compliance with the applicable requirements.

## **REGULATORY APPLICABILITY:**

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

See Permit Application No. 0830-I001, 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.

§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 0830-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:**

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. 0830.

### 3. **New Source Performance Standards (NSPS):**

The facility is subject to 40 CFR Part 60, Subpart IIII – *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines* for the two emergency generators. The generators commenced construction after July 11, 2005, after the applicability date of the NSPS and were manufactured after April 1, 2006. This includes, but is not limited to the following sections:

- **40 CFR §60.4207(b)** – minimum fuel requirements for sulfur content and cetane index (as given in §80.510(b)).
- **40 CFR §60.4211(a)** – minimum emissions standards (as given in §89.112).
- **40 CFR §60.4211(c)** – engine certification.
- **40 CFR §60.4211(e)** – operation limits for non-emergencies.
- **40 CFR §60.4214(b)** – use of a non-resettable hour meter.

### 4. **NESHAP and MACT Standards:**

This facility 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 40 CFR Part 60, Subpart IIII, and no further requirements of Part 63, Subpart ZZZZ apply.

### 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).

### 6. **Emissions Inventory:**

This facility is not required to provide annual Emission Inventory reports per §2108.01.e of Article XXI because this facility does not have the potential to emit a total of:

- a) Ten (10) or more tons of any hazardous air pollutant;
- b) Twenty-five (25) or more tons of all hazardous air pollutant; or
- c) Twenty-five (25) or more tons of any other pollutant regulated under Article XXI.

## EMISSIONS CALCULATIONS:

### Emergency Generator

Generator Rating:	2,919 hp (maximum, at full standby)
Fuel Use (100%):	141.3 gal/hr
Fuel Oil Rating:	140,000 Btu/gal
No. of Generators:	2 (two)
Fuel Oil Sulfur Limit:	0.0015%
Operation:	500 hrs/yr

Emissions are based on data supplied by the manufacturer (see permit application #0830-I001). 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>.

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

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.

The emission limits for the emergency generators are as follows:

**Emergency Generator Emission Limits**

<b>Pollutant</b>	<b>Short-Term (per generator) (lb/hr)</b>	<b>Long-Term (per generator) (tons/year)</b>	<b>Long-Term (total) (tons/year)</b>
Particulate Matter	0.45	0.11	<b>0.22</b>
PM <sub>10</sub>	0.45	0.11	<b>0.22</b>
PM <sub>2.5</sub>	0.45	0.11	<b>0.22</b>
Nitrogen Oxides	34.11	8.53	<b>17.06</b>
Sulfur Oxides	0.71	0.18	<b>0.36</b>
Carbon Monoxide	1.16	0.29	<b>0.58</b>
Volatile Organic Compounds	0.71	0.18	<b>0.36</b>

## 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 the PAWC Becks Run Raw Water Pump Station at 4122 East Carson Street should be approved with the emission limitations and terms & conditions in Operating Permit No. 0830.