

**CITY OF PHILADELPHIA
Department of Public Health
Environmental Protection Division
Air Management Services**

InterOffice Memo

To: File
From: Noelle Helmstetter and Maryjoy Ulatowski
Date: June 26, 2015
Subject: 8-Hour RACT Analysis for Philadelphia Prison System

Introduction:

The Clean Air Act (CAA) requires that moderate (or worse) ozone nonattainment areas implement reasonably available control technology (RACT) controls on all major sources of VOC and NOx. Philadelphia County is part of the Philadelphia-Wilmington-Atlantic City moderate ozone nonattainment area for the 1997 8-hour ozone NAAQS. This document presents the findings of a RACT evaluation for the 1997 8-hour ozone standard for this facility.

Company Description:

Philadelphia Prison System is a correctional institution which houses inmates. The facility is located at 8001 State Road, Philadelphia, PA 19136.

Applicability for NOx and VOC RACT:

The Philadelphia Prison System is a major source of Nitrogen Oxides (NOx) having potential NOx emissions greater than 100 tons per year, the major source threshold in Philadelphia County that is applicable to NOx RACT for the 1997 8-hour ozone NAAQS.

The Philadelphia Prison System is not a major source of Volatile Organic Compounds (VOC) having potential VOC emissions less than 50 tons per year, the major source threshold in Philadelphia County that is applicable to VOC RACT for the 1997 8-hour ozone NAAQS.

Process Descriptions:

The facility's air emission sources contributing to NOx emissions include the following:

- 57 boilers rated less than 15 MMBtu/Hr burning No. 2 oil/ natural gas;
- 10 emergency generators less than or equal to 2,200 hp burning diesel;
- One (1) 365 hp chiller burning natural gas
 - Unit ID: CURCF6.

Presumptive RACT:

The following sources are covered by presumptive RACT regulations, as is specified in the "Presumptive RACT regulation" column of the table on the next page.

Unit	Heat Input (MMBTU/hr)	Fuel Burned	Presumptive RACT Regulation
CUMAIN1	2.00	No. 2 fuel oil	25 PA Code 129.93 (c)
CUMAIN2	2.00	No. 2 fuel oil	25 PA Code 129.93 (c)
CUMAIN3	5.00	No. 2 fuel oil	25 PA Code 129.93 (c)
CUMAIN4	5.00	No. 2 fuel oil	25 PA Code 129.93 (c)
CUHOC1	8.00	No. 2 fuel oil	25 PA Code 129.93 (c)
CUHOC2	8.00	No. 2 fuel oil	25 PA Code 129.93 (c)
CUHOC3	8.00	No. 2 fuel oil	25 PA Code 129.93 (c)
CUHOC18	0.25	No. 2 fuel oil	25 PA Code 129.93 (c)
CUHOC19	0.27	No. 2 fuel oil	25 PA Code 129.93 (c)
CUHOC20	0.80	No. 2 fuel oil	25 PA Code 129.93 (c)
CUHOC21	0.80	No. 2 fuel oil	25 PA Code 129.93 (c)
CUHOC22	0.80	No. 2 fuel oil	25 PA Code 129.93 (c)
CUDC13	2.80	No. 2 fuel oil	25 PA Code 129.93 (c)
CUDC14	2.80	No. 2 fuel oil	25 PA Code 129.93 (c)
CUDC15	2.80	No. 2 fuel oil	25 PA Code 129.93 (c)
CUDC10	7.22	No. 2 fuel oil	25 PA Code 129.93 (c)
CUDC11	7.22	No. 2 fuel oil	25 PA Code 129.93 (c)
CUDC12	7.22	No. 2 fuel oil	25 PA Code 129.93 (c)
CUPICC6	8.76	No. 2 fuel oil	25 PA Code 129.93 (c)
CUPICC7	8.76	No. 2 fuel oil	25 PA Code 129.93 (c)
CUPICC8	8.76	No. 2 fuel oil	25 PA Code 129.93 (c)
CUPHSW4	1.25	No. 2 fuel oil	25 PA Code 129.93 (c)
CUPHSW5	1.25	No. 2 fuel oil	25 PA Code 129.93 (c)
CUCFCF1	2.22	No. 2 fuel oil	25 PA Code 129.93 (c)
CUCFCF2	2.22	No. 2 fuel oil	25 PA Code 129.93 (c)
CUCFCF3	2.22	No. 2 fuel oil	25 PA Code 129.93 (c)
CUCFCF4	14.70	No. 2 fuel oil	25 PA Code 129.93 (c)
CUCFCF5	14.70	No. 2 fuel oil	25 PA Code 129.93 (c)
CUCFCF6	14.70	No. 2 fuel oil	25 PA Code 129.93 (c)
CUCFCF7	14.70	No. 2 fuel oil	25 PA Code 129.93 (c)
CUCFCF8	14.70	No. 2 fuel oil	25 PA Code 129.93 (c)
CURCF1	7.00	No. 2 fuel oil	25 PA Code 129.93 (c)
CURCF2	7.00	No. 2 fuel oil	25 PA Code 129.93 (c)
CURCF8	1.04	No. 2 fuel oil	25 PA Code 129.93 (c)
CURCF9	1.04	No. 2 fuel oil	25 PA Code 129.93 (c)
CUHOC16	2.05	Natural Gas	25 PA Code 129.93 (c)
CUHOC23	2.05	Natural Gas	25 PA Code 129.93 (c)
CUHOC24	2.40	Natural Gas	25 PA Code 129.93 (c)
CUHOC25	2.40	Natural Gas	25 PA Code 129.93 (c)
CUDC16	0.52	Natural Gas	25 PA Code 129.93 (c)
CUCFCF24	1.90	Natural Gas	25 PA Code 129.93 (c)
CUCFCF25	1.90	Natural Gas	25 PA Code 129.93 (c)
CUCFCF26	1.90	Natural Gas	25 PA Code 129.93 (c)
CUCFCF27	1.90	Natural Gas	25 PA Code 129.93 (c)
CUCFCF28	1.90	Natural Gas	25 PA Code 129.93 (c)
CUCFCF29	1.90	Natural Gas	25 PA Code 129.93 (c)
CUCFCF30	1.90	Natural Gas	25 PA Code 129.93 (c)
CUCFCF31	1.90	Natural Gas	25 PA Code 129.93 (c)
CUCFCF32	1.90	Natural Gas	25 PA Code 129.93 (c)
CUCFCF18	1.90	Natural Gas	25 PA Code 129.93 (c)
CUCFCF33	1.90	Natural Gas	25 PA Code 129.93 (c)
CUCFCF34	1.90	Natural Gas	25 PA Code 129.93 (c)
CUHBF1	2.25	Natural Gas	25 PA Code 129.93 (c)
CUHBF2	1.71	Natural Gas	25 PA Code 129.93 (c)
CUHBF3	0.74	Natural Gas	25 PA Code 129.93 (c)
CUHBF4	0.91	Natural Gas	25 PA Code 129.93 (c)
CUHBF5	1.07	Natural Gas	25 PA Code 129.93 (c)

For the all 57 boilers rated less than 15 MMBtu/Hr, the presumptive RACT requirement of 25 PA Code Section 129.93(c)(1) is the installation, operation, and maintenance of the boiler as per the manufacturer's specifications.

Emergency Generators

Unit	Capacity (hp)	Fuel Burned	Presumptive RACT Regulation
CUPHSW3	355	Diesel	25 PA Code 129.93 (c)(5)
CUHOC11	550	Diesel	25 PA Code 129.93 (c)(5)
CUHOC12	211	Diesel	25 PA Code 129.93 (c)(5)
CUPICC4	740	Diesel	25 PA Code 129.93 (c)(5)
CUPICC5	740	Diesel	25 PA Code 129.93 (c)(5)
CUCFCF21	2,200	Diesel	25 PA Code 129.93 (c)(5)
CUCFCF22	2,200	Diesel	25 PA Code 129.93 (c)(5)
CUCFCF23	2,200	Diesel	25 PA Code 129.93 (c)(5)
CURCF7	2,681	Diesel	25 PA Code 129.93 (c)(5)
CUHBF6	355	Diesel	25 PA Code 129.93 (c)(5)

For the ten (10) emergency generators running less than 500 hours per 12-month period, the presumptive RACT requirement is the installation, operation, and maintenance of the boiler as per the manufacturer's specifications.

Case-by-Case RACT:

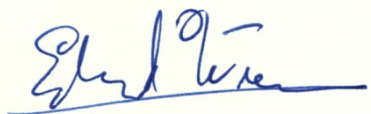
Chiller

Unit	Capacity	Fuel Burned	Comment
CURCF 6 RCF Chiller #1 (with non-selective catalytic reduction device)	365 bhp	Natural Gas	The chiller has a NOx emission limit of 2.0 grams per brake horsepower-hour from AMS Installation Permit No. 05079 dated May 10, 2005. Per AMS Installation Permit No. 05079, the source is equipped with a Non Selective Catalytic Reduction (NSCR) Device (installed to meet the Best Available Technology (BAT) Requirements of 25 PA Code 127.1). The NOx PTE for this source is approximately 7 tons per year (based on 8760 hours per year of operation). For this source, AMS determined that the 2.0 g/bhp-hr emission limit and installation of an NSCR per AMS Permit No. 11052 shall be NOx RACT for the 1997 8-hour ozone standard. NSCR is the most stringent NOx control for the peak-shaving generator and the 2.0 g/bhp-hr limit is the most reasonably achievable limit that the generator can meet with the existing NSCR technology,. Another control device may be used to meet the 2.0 g/bhp-hr NOx emission limit.

Chiller

Conclusions and Recommendations:

All NOx emitting sources are covered by presumptive RACT, with the exception of the chiller. Case-by-case RACT for the chiller is a NOx emission limit of 2.0 g/bhp-hr and installation of a NSCR per AMS Installation Permit No. 05079. The attached RACT permit is submitted for SIP approval.



Edward Wiener, Chief of Source Registration

6/26/15

Date