REVIEW REPORT- Standard ACDP

Peace Health Sacred Heart Medical Center at Riverbend **Permit No. 207536**
3333 Riverbend Drive
Springfield, OR 97477
https://www.peacehealth.org/sacred-heart-riverbend

Source Information:

SIC	8062, 4961
NAICS	622110, 221330

Source Categories (LRAPA Title 37, Table 1)	B.12: Fuel burning equipment B.26: Ethylene Oxide Sterilization C.5: Source with Potential to Emit more than 100 tons of a regulated pollutant
Public Notice Category	II

Compliance and Emissions Monitoring Requirements:

Unassigned emissions	n
Emission credits	n
Compliance schedule	n
Source test date	Opacity (Dc)

COMS	n
CEMS	n
Ambient monitoring	n

Reporting Requirements:

Semi-annual reports (due dates)	July 30 January 30
SACC (due date)	n
Quarterly report (due dates)	n

Monthly report (due dates)	n
Excess emissions report	y
Other reports	n

Air Programs:

NSPS (list subparts)	A, Dc
NESHAP (list subparts)	A, ZZZZ, WWWWW
CAM	n
Regional Haze (RH)	n
Synthetic Minor (SM)	y
Part 68 Risk Management	n
Title V	n
ACDP (SIP)	n
New Source Review (NSR)	n
Prevention of Significant Deterioration (PSD)	n
Acid Rain	n
Clean Air Mercury Rule (CAMR)	n
TACT	y

1. General Background Information

Peace Health Sacred Heart Medical Center at Riverbend (the facility) operates a hospital with steam and electricity generating capability at 3333 Riverbend Drive in Springfield, Oregon. The facility submitted a renewal application on October 16, 2018. The current operation consists of the following:

1.a. **Three Emergency Generators (1G, 2G, and 3G)**: These three (3) generators are compression ignition (CI) internal combustion engines rated at 2000 kW each. Each generator is used for emergency purposes, but fired regularly for maintenance, and each burn Diesel #2. These generators were manufactured sometime in the first quarter of 2006 (before April 1, 2006) and are not subject to the NSPS requirements for Compression Ignition (CI) Reciprocating Internal Combustion Engines because they were manufactured prior to Subpart IIII applicability date (40 CFR 60 Subpart IIII). The generators are considered "existing stationary RICE located at an area source of Hazardous Air Pollutants (HAP)" and are applicable and meet the requirements for the NESHAP for Stationary Reciprocating Internal Combustion Engines (RICE) (40 CFR 63 Subpart ZZZZ).

1.b. **Boiler 4 (B4)**: This is a fire-tube boiler (forced draft burner into horizontal Morrison tube) that burns primarily natural gas with Diesel #2 as a backup. This boiler has a maximum rated capacity of 12.6 MM Btu/hr. This boiler is subject to NSPS requirements (40 CFR 60 Subpart Dc).

1.c. **Boiler 5 (B5)**: This is a fire-tube boiler (forced draft burner into horizontal Morrison tube) that burns primarily natural gas with Diesel #2 as a backup. This boiler has a maximum rated capacity of 33.6 MM Btu/hr. This boiler is subject to NSPS requirements (40 CFR 60 Subpart Dc).

1.d. **Boiler 6 (B6)**: This is a fire-tube boiler (forced draft burner into horizontal Morrison tube) that burns primarily natural gas with Diesel #2 as a backup. This boiler has a maximum rated capacity of 33.6 MM Btu/hr. This boiler is subject to NSPS requirements (40 CFR 60 Subpart Dc).

1.e. **Boiler 7 NEW (B7-NEW)** This is a new fire-tube boiler (forced draft burner into horizontal Morrison tube) that burns primarily natural gas with Diesel #2 as a backup. This boiler has a maximum rated capacity of 26.8 MM Btu/hr. This boiler is subject to NSPS requirements (40 CFR 60 Subpart Dc). It was installed in September of 2018.

1.f. **Ethylene Oxide Sterilizer (EtO):** This is an Ethylene Oxide Sterilizer with a 50 CFM Donaldson EtO Abator System. Maximum rated EtO flow rate is 0.017 lbs/min and the facility uses pure EtO in the sterilizer. This sterilizer is subject to the NESHAP for Hospital Ethylene Oxide Sterilizers requirements (40 CFR 63 Subpart WWWWW).

2. Reasons for Permit Action

The facility operates a process listed in Table 1, Part B and C, of LRAPA Title 37 and is, therefore, required to obtain an air contaminant discharge permit (ACDP). Sacred Heart is requesting renewal of their permit. The permit that expired April 28, 2019 remains valid until LRAPA issues the revised permit.

3. Enforcement History

There has been no enforcement actions performed against the facility.

4. Performance Test Results

Performance testing is not required by the permit. The use of emission factors is appropriate for determining compliance with the PSELs.

5. Plant Site Emission Limits (PSELs)

The annual PSEL for all pollutants is set at the generic PSEL level. Compliance with the annual PSEL must be demonstrated by multiplying the actual fuel usage by the best available emission factor and summing the totals. Based upon distillate oil firing, the facility has the potential to emit above the major source threshold (100 tons/year) for Nitrogen Oxide (NO_X), Carbon Monoxide (CO) and Sulfur Dioxide (SO_2). The generators are considered categorically insignificant activities if fired only for emergency purposes and if readiness checks are limited to a certain number of hours per year; emissions from emergency generators are not included in the PSEL in accordance with LRAPA 42-0035(5).

Annual PSEL
(tons/year)

	PM	PM_{10}	$PM_{2.5}$	NO_X	SO_2	CO	VOC	GHG
Facility	24	14	9	39	39	99	39	74,000

6. Emission Factors

The permittee is required to use the best available emission factors for purposes of estimating emissions. The permit contains the emission factors used to estimate emissions. The annual GHG emission report (metric tons) required by OAR division 215 is used for the purposes of compliance with the GHG PSEL (short tons).

7. Baseline Emission Rates (BER)

This is a new facility and hence the BER for all pollutants is zero (0) tons/year.

8. Significant Emission Rates (SERs)

All allowed emissions are less than the SER as shown below.

Pollutant	Proposed PSEL (tons/year)	BER (tons/yr)	Increase from BER (tons/year)	SER (tons/year)
Particulate, PM	24	0	24	25
Particulate, PM_{10}	14	0	14	15
Particulate, $PM_{2.5}$	9	0	9	10
CO	99	0	99	100
NO_x	39	0	39	40
VOC	39	0	39	40
SO_2	39	0	39	40
GHG	74,000	0	74,000	75,000

9. Hazardous Air Pollutants (HAP) and National Emission Standards for Hazardous Air Pollutants (NESHAPs)

The projected HAP emissions from the facility are expected to be minimal. Ethylene Oxide (EtO) emissions are estimated to be 52.7 lbs/year. The EtO sterilizer and Donaldson Abator are subject to the Subpart WWWWW area source NESHAP. The permit contains requirements that the facility sterilize only full loads, except under medically necessary circumstances.

Additional (negligible) amounts of HAPs are also emitted by the fuel burning equipment.

The natural gas-fired boilers are not in the 'oil category' under the area source boiler NESHAP (40 CFR 63 Subpart JJJJJJ) so long as periodic testing on liquid fuel (as backup) does not exceed 48 hours per year. There are no emission standards or work practices that are applicable to the facility's boilers, so long as oil firing is limited to testing and not to exceed 48 hours per year.

The emergency generators are subject to the requirements of 40 CFR 63 Subpart ZZZZ in accordance with 40 CFR 63.6585(c) and 63.6590(a)(1)(iii).

10. Typically Achievable Control Technology (TACT)

LRAPA Title 32-008 requires an existing emission unit at a facility to meet TACT if the emissions unit has emissions of criteria pollutants greater than ten (10) tons per year of any gaseous pollutant or five (5) tons per year of particulate, and the emissions unit is not subject to the emissions standards under LRAPA Title 32, Title 33, Title 39, or Title 46 for the pollutants emitted, and the facility is required to have a permit. The boilers and generators are subject to NSPS and are not required to meet TACT and/or LRAPA has determined that good combustion practices constitute TACT for the type of fuel burning equipment at the facility.

11. New Source Review (NSR) and Prevention of Significant Deterioration (PSD)

Because the proposed PSELs for all regulated pollutants are below the Significant Emission Rates (SERs) in LRAPA Title 12, the facility is not subject to LRAPA's PSD requirements for PM_{10}, $PM_{2.5}$, SO_X, NO_X, CO, and VOC in LRAPA Title 38.

12. New Source Performance Standards (NSPS)

Each boiler is subject to the NSPS requirements of 40 CFR Subpart Dc. The permit contains limits on sulfur content, visible emissions, monitoring for sulfur content and visible emissions, limits on particulate matter, and reporting for oil combusted in each boiler. The use of fuel supplier certifications satisfies the 'initial performance test' requirement under 40 CFR 60.8 for the boilers rated at less than 30 MMBtu/hr. However, for the two (2) boilers rated at greater than 30 MMBtu/hr, the facility is required to conduct an initial performance test using EPA Method 9 while firing oil as well as subsequent visible emission monitoring and limits on particulate matter. The facility also has the option to install and operate a Continuous Opacity Monitoring System (COMS) in lieu of the EPA Method 9 testing.

13. Continuous Compliance

To ensure compliance with the annual PSELs, the facility is required to keep a record of the following information for a period of two (2) years.

Parameter	Frequency	Monitoring Equipment
Amount of natural gas combusted by each boiler (cubic feet)	Monthly	Gas Meter
Amount of No. 2 fuel oil and combusted by each boiler and generator (gallons)	Monthly	Oil Flow Meter or Estimate Based Upon Hours of Operation
Hours of maintenance and readiness checking operation of each generator	Monthly	Hour Meter
Maintenance of each generator	Each Occurrence	NA
Certification of sulfur content of diesel fuel oil for boilers	Each Delivery	Fuel Supplier certificate.
Number of sterilization cycles, number of sterilization cycles that did not include a full load and reasons for not conducting full loads	Monthly	NA

14. Reporting Requirements

The facility is required to submit semi-annual reports for every 6-month period when any or each boiler is fired on distillate oil. Annual reports are also required to be submitted to LRAPA.

15. Public Notice

The draft permit was on public notice from February 13, 2019 to March 19, 2019. The facility submitted one comment during the 35-day comment period. The facility requested the option to use a Continuous Opacity Monitoring System (COMS) in lieu of EPA Method 9 for determining compliance with the opacity standards in 40 CFR 60 Subpar Dc that apply to two of the boilers while operating on oil. Condition 20 of the permit was revised to include COMS as an option outlined in the national standard.

MAX/cmw
04/08/19

Emission Details

Emergency Generators Combustion Emissions (3 Generators @ 60 Hz, 18.8 MM BTU/hr)						
	MaxDesign	Emission	Annual		Hours/year=	8760
	Power Rate	Factor	Emissions			
Pollutant	(hp)	(gram/hp-hr)	(tons/yr)			
NOx	8046	7	543.9			
CO	8046	0.9	69.9			
VOC	8046	0.2	15.5			
PM	8046	0.04	3.1			
SO2	8046	0.58	45.1			
Emission factors are from facility via Cummins for #2 diesel						
Generators each rated at 2000 kW in standby mode						
Fuel Consumption during full standby rated at 137.3 gal/hour						
Total kW = 2000 x 3 = 6,000 kW or 8,046 Hp						
1kW = 1.3410 hp						
Facility estimates 6 hours/yr operation for each generator, double for PSEL						
Boilers Combustion Emissions - NATURAL GAS (4 Boilers w/ 106.6 MM BTU/hr Aggregate Heat Iput)						
	MaxDesign	Emission	Annual		Hours/year	8760
	Heat Input Rate	Factor	Emissions			
Pollutant	(MM BTU/hr)	(lb/MM SCF)	(tons/yr)			
NOx	106.6	100	45.8			
CO	106.6	84	38.5			
VOC	106.6	5.5	2.5			
PM	106.6	7.6	3.5			
SO2	106.6	0.6	0.3			
1020 BTU/SCF						
New Boiler is a Hurst 26.8 MMBtu/hr firetube boiler (installed Sept. 2018)						
Boiler #4 is a Mohican 12.6 MM BTU/hr firetube boiler						
Boilers #5 and #6 are Mohican 33.6 MM BTU/hr firetube boilers						
Emission factors are from AP-42, Section 1.4						

Boilers Combustion Emissions - DIESEL (3 Boilers w/ 79.8 MM BTU/hr Aggregate Heat Iput)

	MaxDesign Fuel rate	Emission Factor	Annual Emissions		Hours/year	8760
Pollutant	(gal/hr)	(lb/1000 Gal)	(tons/yr)			
NOx	570	20	49.9			
CO	570	5	12.5			
VOC	570	0.556	1.4			
PM	570	1.3	3.2			
SO2	570	71	177.3			

1020 BTU/SCF
Boiler #4 is a Mohican 90 gal/hour diesel firetube boiler
Boilers #5 and #6 are Mohican 240 gal/hr firetube boilers
Emission factors are from AP-42, Section 1.3
Facility estimates 1200 gallons/year Distallate (No.2 Diesel)

EtO Sterilizer and EtO Abator Emissions - Donaldson 50 CFM, 0.017 lb EtO/min Max.

Basis (max design rate):	0.017	lbs/min	8935.2	lbs/year	EtO Consumed
Gas:	100% Ethylene Oxide				
Emissions:	8935.2	lb EtO/year			
Sterilizer Chamber	8.04168	lb EtO/year	(assume 99.9% control)		
Aerator Chamber	44.676	lb EtO/year	(assume 95% control)		
Total EtO Emissions	52.71768	lb EtO/year	(sterilizer plus aerator)		

Heat is supplied electrically, therefore no combustion emissions.

Total Emissions

Pollutant	Potential Annual Emissions	PSEL
NOx	593.8	39
CO	108.4	99
VOC	19.5	39
PM10	9.8	14
SO2	222.6	39