



west virginia department of environmental protection

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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.: R13-2824
Plant ID No.: 033-00026
Applicant: Louis A. Johnson VA Medical Center
Facility Name: Clarksburg Facility
Location: Clarksburg, Harrison County
SIC Code: 8062 GENERAL MEDICAL & SURGICAL HOSPITALS
Application Type: Construction
Received Date: 12/28/2009
Engineer Assigned: David Keatley
Fee Amount: \$2,000
Date Received: 1/6/2010
Complete Date: 3/4/2010
Due Date: 6/2/2010
Applicant Ad Date: 2/11/2010
Newspaper: *The Exponent Telegram*
UTM's: Easting: 4,347.106 km Northing: 555.154 km Zone: 17
Description: The applicant has three after-the-fact boilers. One of the boilers was installed in 1996 and has a 15 mmBTU/hr maximum capacity; the other two boilers are identical and have a 14.7 mmBTU/hr maximum capacity.

DESCRIPTION OF PROCESS

Three boilers are fed from one natural gas line. The natural gas enters the Morrison Tube and makes three passes through Boiler #3, and four passes through Boilers #1 and #2 where water is heated to produce steam. The steam generated is used for heat, laundry operations, and sterilization purposes. After completing the appropriate number of passes, the gas enters the stack at a temperature of approximately 350 °F prior to passing through an economizer. The economizer is used to heat feed water before it enters the boilers to increase efficiency. The gas then exits the stack at an approximate temperature of 315 °F. The same process occurs if #2 fuel oil is utilized.

SITE INSPECTION

On January 21, 2010 the permit writer and Roy Kees conducted a site visit. The three boilers were in the basement of a small building separate from the main building of the hospital. The three emissions points of the boilers were visible from the basement. Directions: From Charleston take I-79 N to Clarksburg take exit 119. Turn left onto WV-20 then turn left onto WV-98. Then turn right onto Med Center Drive, parking was available just past the hospital at the time of the site visit.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Source ID	Emission Source	Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (tpy)
unit 1	York Shipley Global Ser#05-21739	Nitrogen Oxides	2.1	9.2
		Carbon Monoxide	1.24	5.4
		SO ₂	0.75	3.3
		PM	0.11	0.5
unit 2	York Shipley Global Ser#05-21738	Nitrogen Oxides	2.1	9.2
		Carbon Monoxide	1.24	5.4
		SO ₂	0.75	3.3
		PM	0.11	0.5
unit 3	Bryan Steam LLC RW1260-W-FDG	Nitrogen Oxides	2.1	9.2
		Carbon Monoxide	1.26	5.5
		SO ₂	0.75	3.3
		Particulate Matter	0.11	0.5

REGULATORY APPLICABILITY

45CSR2 (To Prevent and Control Particulate Air Pollution From Combustion of Fuel in Indirect Heat Exchangers)

The three boilers at this facility meet the definition for fuel burning unit (section 2.10). These three boiler exceed the exemption threshold of 10 mmBTU and are subject to the following limitations.

No person shall cause, suffer, allow or permit emission of smoke and/or particulate matter into the open air from any fuel burning unit which is greater than ten (10) percent opacity based on a six minute block average (section 3.1). Compliance with the visible emission requirements will not have to be done using Method 9 (Section 8.4.c), but will require Method 22 readings (45CSR13.5.11). These visible emission standards apply at all times except in periods of start-ups, shutdowns, and malfunctions (section 9.1). If the director believes that start-ups

and shutdowns are excessive in duration and/or frequency, the director may require an owner or operator to provide a written report demonstrating that these frequent start-ups and shutdowns are necessary (section 9.1).

These boilers are also subject to the weight rate limitations of section 4.1.b This section limits the particulate matter emissions from each of the boilers. Unit 1 and Unit 2 has a individual limitation of $0.09 \times 14.7 = 1.32$ lb/hr of PM. Unit 3 has a limitation of $0.09 \times 15 = 1.35$ lb/hr of PM. The calculated PTE of PM for these boilers is 0.11 lb/hr which is well below the limitation provided in this rule.

Under section 5.1 there shall be a fugitive particulate matter control system that is operated to minimize the emission of fugitive particulate matter associated with the stockpiling of fuel or fuel handling systems.

At all times, including periods of start-ups, shutdowns, and malfunctions, owners and operators shall, to the extent practicable, maintain consistent with good air pollution control practice for minimizing emissions (section 9.2).

The Louis A. Johnson VA Medical Center shall document start-ups, shut-downs, and malfunctions. Excess opacity periods meeting the requirements in section 9.3.a may be reported quarterly, unless otherwise required by the director. If the requirements in section 9.3.a are not met, then 9.3.b is followed.

When burning pipeline quality natural gas, such records shall include, but not be limited to, the date and time of start-up and shutdown, and the quantity of fuel consumed on a monthly basis.

When burning #2 fuel oil, such records shall include, but not be limited to, the date and time of start-up and shutdown, the quantity of fuel consumed on a monthly basis and a BTU analysis for each shipment.

45CSR2A (Testing, Monitoring, Recordkeeping and Reporting Requirements Under 45CSR2)

When combusting natural gas this facility shall record date and time of start-up and shutdown, and quantity of fuel consumed on a daily basis (section 7.1.a.1). When combusting #2 Fuel Oil this facility will record everything that is required for natural gas and a BTU analysis for each shipment (section 7.1.a.2).

45CSR4 (To Prevent an Control the Discharge of Air Pollutants into the Open Air which Causes or Contributes to the Objectionable Odor or Odors)

The Louis A. Johnson VA Medical Center shall not cause the discharge of air pollutants which cause or contribute to an objectionable odor at any location occupied by the public.

45CSR13 (Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, and Procedures for Evaluation)

45CSR13 applies to this source because this source exceeds the regulatory emission threshold for regulated air pollutants of 6 lb/hr and 10 ton/year.

45CSR16 (Standards of Performance for New Stationary Sources)

Since this source is subject to 40CFR60 Subpart Dc it is subject to this rule.

45CSR30 (Requirements for Operating Permits)

The Louis A. Johnson VA Medical Center's boilers are subject to 40CFR60 Subpart Dc, and are therefore subject to 45CSR30 as a deferred source. The Louis A. Johnson VA Medical Center will be required to keep their Certificate to Operate current.

40CFR60 Subpart Dc (Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units)

For a boiler to be subject to this regulation it has to be constructed, modified, or reconstructed after June 9, 1989 and has a maximum design capacity of less than 100 MMBTU/hr and more than 10 MMBTU/hr. All three boilers at this facility meet these criteria, making them subject to Subpart Dc. Subpart Dc has requirements for both #2 fuel oil (referred in Subpart Dc as Distillate Oil) and natural gas, and has requirements for SO₂ and particulate matter. For #2 fuel oil (FO) Subpart Dc has a recordkeeping requirements for amount and recordkeeping and reporting requirement for sulfur content. For #2 FO the opacity requirement under 60.43c(c) is 20 percent opacity (6-minute average). For natural gas Subpart Dc has a amount recordkeeping requirement.

AIR QUALITY IMPACT ANALYSIS

Since the Louis A. Johnson VA Medical Center does not meet or exceed the threshold for PSD no modeling will be performed.

MONITORING OF OPERATIONS

Since 45CSR2 is the more stringent opacity requirement than 40CFR60 Subpart Dc, it is the requirement that will be enforced. Compliance with the 10% opacity limitation that is in 45CSR2 shall be demonstrated by conducting quarterly Method 22 tests of each boiler that is operated. These tests shall be documented and kept on site for evaluation at the Directors request for a period of no less than five (5) years.

This facility shall document the date and time of all start-ups, shut-downs, and malfunctions. The quantity of #2 fuel oil consumed on a daily basis. The parameter required to perform a BTU analysis will be recorded for each shipment of #2 fuel oil.

The vendor's fuel content certification will be used to demonstrate compliance with 40CFR60 Subpart Dc fuel sulfur standard. A quarterly report of these certifications shall be submitted to the Director according to the provisions outlined in Sections 60.48c(d) and 60.48c(e)(11).

RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates that compliance with all applicable rules and regulations will be achieved. Therefore, I recommend to the Director of Air Quality the issuance of Permit Number R13-2824 to the Louis A. Johnson VA Medical Center located in Clarksburg, Harrison County, WV.

David Keatley
Engineer

Date