



**west virginia** department of environmental protection

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**ENGINEERING EVALUATION / FACT SHEET**

**BACKGROUND INFORMATION**

Application No.: R13-3303  
Plant ID No.: 079-00191  
Applicant: Charleston Area Medical Center, Inc. (CAMC)  
Facility Name: CAMC Teays Valley Hospital  
Location: Hurricane, Putnam County, WV  
NAICS Code: 62211  
Application Type: Construction (After-the-fact)  
Received Date: March 23, 2016  
Engineer Assigned: March 25, 2016  
Fee Amount: \$4,500.00  
Date Received: April 25, 2016  
Complete Date: May 2, 2016  
Due Date: August 2, 106  
Applicant Ad Date: March 30,2016  
Newspaper: Charleston Newspapers  
UTM's: Easting: 416.91 Northing: 4,256.40 Zone: 17  
Description: After-the-fact construction of two small, duel-fired (natural gas and diesel fuel) boilers and one emergency diesel-fired generator.

**DESCRIPTION OF PROCESS**

This process description is a modified verison of the process description found in Attachment G to the permit application

This Application for a New Source Review Permit outlines Charleston Area Medical Center (CAMC) - Teays Valley Hospital's need to permit two existing Cleaver Brooks boilers (4.5 MM Btu/hr each) and one existing emergency generator (800 kW).

The boilers are vented through double wall stacks (see Process Flow Diagram). The boilers are equipped with dual-fuel burners firing either natural gas or No. 2 fuel oil, but with No. 2 fuel oil to be fired only when conducting periodic testing and readiness checks of the boiler's ability to fire on No. 2 fuel oil (total time not to exceed 48 hr/yr), during periods of natural gas curtailment, or natural gas supply emergencies. Emissions from the

combustion of the fuel and natural gas supply will be vented to the atmosphere through their corresponding stacks as outlined above and on the Process Flow Diagram.

The emergency generator is used to provide electricity throughout the facility in the event of a power failure. The generator is vented through a designated stack (see Process Flow Diagram). The generator is powered by No. 2 Fuel Oil (diesel fuel). Raw materials include the fuel and excess air, while products include electricity only. Emissions from the combustion of the fuel supply will be vented to the atmosphere through the corresponding stack as outlined above and on the Process Flow Diagram.

**Table 1: Emission Units Table (see Application R13-3303, Attachment I).**

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
Boiler 1	BS-1	107 HP dual fuel boiler (natural gas & diesel fuel) Mfg. Cleaver Brooks Boiler Model M4 P-4500	2000	4.5 MM Btu	None
Boiler 2	BS-2	107 HP dual fuel boiler (natural gas & diesel fuel) Mfg. Cleaver Brooks Boiler Model M4 P-4500	2000	4.5 MM Btu	None
Generator 1	GS-1	800 kW/1214 bhp diesel fueled Emergency Generator Set (DWB01571) Mfg. Caterpillar, Inc. Engine Model C27 ATAAC, V-12, 4-Stroke Engine Family No. 9CPXL27.0ESW Certificate of Conformity 2009 Model Year Certificate No. CPX-NRCI-09-11	2011	800 kW	None

**Table 2: Boilers 1 & 2 - Emission Unit Data Sheet (EUDS).**

Item	Response
<b>Equipment Information</b>	
Manufacturer:	Cleaver Brooks
Use:	Space and process heating
Model No.:	M4 P-4500
Serial No.:	4G0Z9869 / 4G029866
Rated Boiler Horsepower:	107 hp
Maximum Design Heat Input:	4.5 x 10 <sup>6</sup> Btu/hr
Steam Produced (at maximum design output)	3,711 lb/hr @ 150 psig
Operating Schedule:	24 - Hr/Day; 7 - Day/Wk; 52 Wk/Yr

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**Table 2: Boilers 1 & 2 - Emission Unit Data Sheet (EUDS).**

Item		Response
Type of firing equipment to be used:		Oil Burners; Natural Gas Burners
Proposed type of burners and orientation:		Front Wall
Type of Draft:		Forced
<b>Stack or Vent Data</b>		
Inside Diameter or Dimensions:		2.0 ft.
Gas Exit Temperature:		450 °F
Height:		20 ft.
Gas Flow Rate:		895 ft <sup>3</sup> /min
Stack Serves:		Only this equipment.
<b>Fuel Requirements</b>		
Quantity	Hourly	No. 2 Fuel Oil - 32.14 gph @ 60°F Natural Gas - 4,500 ft <sup>3</sup> /hr
	Annual	No. 2 Fuel Oil - 16,070 gallon/yr Natural Gas - 39.42 X 10 <sup>6</sup> ft <sup>3</sup> /hr
BTU Content:		140,000 Btu/Gal - No. 2 Fuel Oil 1,010 Btu/ft <sup>3</sup> - Natural Gas
Gas Burner Mode of Control:		Automatic full modulation
Gas Burner Manufacturer:		Cleaver Brooks
Oil Burner Manufacturer:		Cleaver Brooks
Fuel Oil Preheated:		No

**Table 3: Information on Emergency Generator Engine.**

Source ID No.	EG-1
Manufacturer and Model	Caterpillar C27/DWB01571
Manufacturer's Rated bhp/rpm	1,214/1,800
Source Status	Existing Source
Date Installed/Modified/Removed:	2011
Engine Manufacture / Reconstruction Date:	2011

**Table 3: Information on Emergency Generator Engine.**

Is this a Certified Stationary Compression Ignition Engine according to 40 CFR 60 Subpart IIII?	Yes
Engine Type	Rich Burn Four Stroke (RB4S)
APCD Type	Low Emission Combustion (LEC)
Fuel Type	#2 Fuel Oil
H <sub>2</sub> S (gr/100 scf)	15 ppm S
BSFC (Btu/bhp-hr)	6,608
Fuel Consumption (hourly)	57.3 gal/hr
Fuel Consumption (annual)	28,650 gal/yr
Operation	500 hr/yr

## **SITE INSPECTION**

CMAC's Teays Valley Hospital is an existing source. The writer and Dan Bauerle, DAQ Enforcement Inspector, visited/inspected the facility on August 30, 2016. Nathan Spencer, CAMC Teays Valley Hospital Maintenance Supervisor was the host during the inspection. The two (2) boilers and the emergency generator engine were in agreement with the permit application. Directions to the facility as given in the application are as follows:

From Interstate 64, exit at WV-34 (Exit 39). Turn left (south) onto WV-34 and continue for approximately 1.2 miles. Turn right onto Hospital Drive and continue for approximately 0.3 miles. The facility will be on the left.

## **ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER**

The writer estimates emissions from the facility to equal: 2.50 lb/hr and 6.20 ton/yr of CO; 17.86 lb/hr and 8.93 ton/yr of Nox; 0.22 lb/hr and 0.42 ton/yr of PM; 0.19 lb/hr and 0.044 ton/yr of SO<sub>2</sub>; and 0.27 lb/hr and 0.66 ton/yr of VOC.

## **Boilers 1 & 2 Emission Calculations**

Note that diesel fuel is burned in the boilers when conducting periodic testing and readiness checks of the boiler's ability to fire on diesel fuel. The total duration of such periodic testing and readiness checks can not exceed more than 48 hours per year for each boiler.

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Carbon Monoxide (CO) emissions from burning natural gas in the boilers were calculated in Table 4 below.

<b>Table 4: CO Emissions from CAMC Teays Valley Hospital Boilers.</b>				
<b>Emission Point ID No.</b>	<b>Boiler, Make &amp; Model</b>	<b>Natural Gas</b>		
		<b>Emission Factor<sup>(1)</sup></b>	<b>Maximum Allowable CO Emissions<sup>(2)</sup></b>	
		<b>(lb/MMBtu)</b>	<b>(lb/hr)</b>	<b>(ton/yr)</b>
BS-1	Cleaver Brooks Model No. : M4 P-4500 Serial No.: 4G0Z9869	0.15	0.68	2.96
BS-2	Cleaver Brooks Model No.: M4P-4500 Serial No.: 4G029866	0.15	0.68	2.96
<b>Total<sup>(3)</sup></b>			<b>1.35</b>	<b>5.91</b>

(1) Emission Factor Source: Boiler Manufacturer.

(2) Based on a boiler heat input of 4.5 MM Btu/hr and 8,760 hours of operation.

(3) Totals are provided for informational purposes only.

Nitrogen Oxide (NOx) emissions from burning natural gas in the boilers are calculated in Table 5 below:

<b>Table 5: NOx Emissions from CAMC Teays Valley Hospital Boilers.</b>				
<b>Emission Point ID No.</b>	<b>Boiler, Make &amp; Model</b>	<b>Natural Gas</b>		
		<b>Emission Factor<sup>(1)</sup></b>	<b>Maximum Allowable NOx Emissions<sup>(2)</sup></b>	
		<b>(lb/MMBtu)</b>	<b>(lb/hr)</b>	<b>(ton/yr)</b>
BS-1	Cleaver Brooks Model No. : M4 P-4500 Serial No.: 4G0Z9869	0.12	0.54	2.37
BS-2	Cleaver Brooks Model No.: M4P-4500 Serial No.: 4G029866		0.54	2.37
<b>Total<sup>(3)</sup></b>			<b>1.08</b>	<b>4.73</b>

(1) Emission Factor Source: Boiler Manufacturer.

(2) Based on a boiler heat input of 4.5 MM Btu/hr and 8,760 hours of operation.

(3) Totals are provided for informational purposes only.

Particulate Matter (PM) emissions from burning natural gas in the boilers are calculated in Table 6 below:

<b>Table 6: PM Emissions from CAMC Teays Valley Hospital Boilers.</b>				
<b>Emission Point ID No.</b>	<b>Boiler, Make &amp; Model</b>	<b>Natural Gas</b>		
		<b>Emission Factor <sup>(1)</sup></b>	<b>Maximum Allowable PM Emissions <sup>(2)</sup></b>	
		<b>(lb/MMBtu)</b>	<b>(lb/hr)</b>	<b>(ton/yr)</b>
BS-1	Cleaver Brooks Model No. : M4 P-4500 Serial No.: 4G0Z9869	0.01	0.05	0.20
BS-2	Cleaver Brooks Model No.: M4P-4500 Serial No.: 4G029866		0.05	0.20
<b>Total <sup>(3)</sup></b>			<b>0.09</b>	<b>0.39</b>

(1) Emission Factor Source: Boiler Manufacturer.

(2) Based on a boiler heat input of 4.5 MM Btu/hr and 8,760 hours of operation.

(3) Totals are provided for informational purposes only.

Sulfur Dioxide (SO<sub>2</sub>) emissions from burning natural gas in the boilers are calculated in Table 7 below:

<b>Table 7: SO2 Emissions from CAMC Teays Valley Hospital Boilers.</b>				
<b>Emission Point ID No.</b>	<b>Boiler, Make &amp; Model</b>	<b>Natural Gas</b>		
		<b>Emission Factor <sup>(1)</sup></b>	<b>Maximum Allowable SO<sub>2</sub> Emissions <sup>(2)</sup></b>	
		<b>(lb/MMBtu)</b>	<b>(lb/hr)</b>	<b>(ton/yr)</b>
BS-1	Cleaver Brooks Model No. : M4 P-4500 Serial No.: 4G0Z9869	0.001	0.005	0.02
BS-2	Cleaver Brooks Model No.: M4P-4500 Serial No.: 4G029866		0.005	0.02
<b>Total <sup>(3)</sup></b>			<b>0.009</b>	<b>0.04</b>

(1) Emission Factor Source: Boiler Manufacturer.

(2) Based on a boiler heat input of 4.5 MM Btu/hr and 8,760 hours of operation.

(3) Totals are provided for informational purposes only.

Volatile Organic Compound (VOC) emissions from burning natural gas in the boilers are calculated in Table 8 below:

Emission Point ID No.	Boiler, Make & Model	Natural Gas		
		Emission Factor <sup>(1)</sup>	Maximum Allowable VOC Emissions <sup>(2)</sup>	
			(lb/MMBtu)	(lb/hr)
BS-1	Cleaver Brooks Model No. : M4 P-4500 Serial No.: 4G0Z9869	0.016	0.07	0.32
BS-2	Cleaver Brooks Model No.: M4P-4500 Serial No.: 4G029866		0.07	0.32
Total <sup>(3)</sup>			0.14	0.63

(1) Emission Factor Source: Boiler Manufacturer.

(2) Based on a boiler heat input of 4.5 MM Btu/hr and 8,760 hours of operation.

(3) Totals are provided for informational purposes only.

### Emergency Generator Engine Emissions

Pollutant	Emission Factor (gm/hp-hr)	Emission Rate <sup>(3)</sup>	
		Hourly (lb/hr)	Annual (ton/yr)
CO	0.43 <sup>(1)</sup>	1.15	0.29
NO <sub>x</sub>	6.27 <sup>(1)</sup>	16.78	4.20
PM10	0.05 <sup>(1)</sup>	0.13	0.03
SO <sub>2</sub>	0.0055 <sup>(2)</sup>	0.01	0.004
VOC	0.05 <sup>(1)</sup>	0.13	0.03

(1) Emission factor from Caterpillar.

(2) Emission factor from USEPA, AP-42, Chapter 3, Table 3.4-1 (greater than 600 HP). Sulfur content of fuel is 0.0015% (15 ppm) per application MSDS.

(3) Based on 1,214 bhp and 500 hr/yr of operation.

### REGULATORY APPLICABILITY

CAMC's Teays Valley Hospital is a non-major, stationary source under Rule 13, a deferred Title V source and an area source for Hazardous Air Pollutants (HAPs).

The following State and Federal Rules were examined for applicability:

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45CSR2 - "To Prevent and Control Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers"

Section 3 of this rule applies to CAMC's boilers.

According to Section 11.1: "Any fuel burning unit(s) having a heat input under ten (10) million B.T.U.'s per hour will be exempt from sections 4, 5, 6, 8 and 9." CAMC's boilers each have a heat input of 4.5MM Btu/hr. Exempted sections:

- Section 4 is entitled: "Weight Emission Standards."
- Section 5 is entitled: "Control of Fugitive Particulate Matter."
- Section 6 is entitled: "Registration."
- Section 8 is entitled: "Testing, Monitoring, Recordkeeping and Reporting."
- Section 9 is entitled: "Start-ups, Shutdowns and Malfunctions."

Applicable/non-exempted sections:

- Section 3 is entitled, "Visible Emissions of Smoke And/Or Particulate Matter Prohibited And Standards of Measurement.;"
- Section 7 is entitled, "Permits;"
- Section 10 is entitled, "Variances;"
- Section 11 is entitled, "Exemptions;" and
- Section 12 is entitled, "Inconsistency Between Rules."

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. **[45CSR§2-3.1.]**

Note that visible emission checks of the boilers are not required because the boilers are exempted from Section 8 of Rule 2.

45CR10 - "To Prevent and Control Air Pollution From the Emission of Sulfur Oxides."

With regards to CAMC's boilers:

According to Section 10.1: "Any fuel burning units having a design heat input under ten (10) million BTU's per hour will be exempt from section 3 and sections 6 through 8." Exempted sections:

- Section 3 is entitled: "Sulfur Dioxide Weight Emission Standards for Fuel Burning Units."
- Section 6 is entitled: "Registration."

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- Section 7 is entitled: "Permits."
- Section 8 is entitled: "Testing, Monitoring, Recordkeeping and Reporting."

Applicable/non-exempted sections have no substantive requirements or no applicable requirements:

- Section 4 is entitled, "Standards for Manufacturing Process Source Operations;"
- Section 5 is entitled, "Combustion of Refinery or Process Gas Streams;"
- Section 9 is entitled, "Variance;"
- Section 10 is entitled "Exemptions and Recommendations;"
- Section 11 is entitled, "Circumvention;" and
- Section 12 is entitled, "Inconsistency Between Rules."

45CSR13 - "Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits, and Procedures for Evaluation."

CAMC submitted a complete application (May 2, 2016) for the after-the-fact construction of two duel-fired boilers and an emergency diesel-fueled generator set; ran a legal advertisement (Charleston Newspapers, March 30, 2016); and paid a \$4,500 application fee (April 25, 2016; \$1,000 application fee, \$1,000 NSPS fee, and \$2,500.00 MACT fee) to obtain a construction permit.

45CSR16 "Standards of Performance for New Stationary Sources"

Adopts by reference the standards of performance for new stationary sources promulgated by the United States Environmental Protection Agency pursuant to section 111(b) of the federal Clean Air Act, as amended (CAA). This rule codifies general procedures and criteria to implement the standards of performance for new stationary sources set forth in 40 CFR Part 60. The rule also adopts associated reference methods, performance specifications and other test methods which are appended to these standards.

40 CFR 60, Subpart Dc was found not be applicable because each of the two (2) boilers heat inputs were less than 10 MM Btu/hr.

40 CFR 60, Subpart IIII applies to the emergency diesel-fired engine/generator set.

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40CSR30 - "Requirements for Operating Permits."

The facility is considered to be a deferred non-major Title V.

45CSR34 - "Emission Standards for Hazardous Air Pollutants for Source Categories Pursuant to 40 CFR, Part 63"

This rule establishes and adopts a program of national emission standards for hazardous air pollutants (NESHAPS) and other regulatory requirements promulgated by the United States Environmental Protection Agency pursuant to 40 CFR Parts 61, 63 and section 112 of the federal Clean Air Act, as amended (CAA). This rule codifies general procedures and criteria to implement emission standards for stationary sources that emit (or have the potential to emit) one or more of the eight substances listed as hazardous air pollutants in 40 CFR §61.01(a), or one or more of the substances listed as hazardous air pollutants in section 112(b) of the CAA. The Secretary hereby adopts these standards by reference. The Secretary also adopts associated reference methods, performance specifications and other test methods which are appended to these standards.

40 CFR 63, Subpart ZZZZ and Subpart JJJJJJ were review for applicability. See below.

40 CFR 60 Subpart Dc, "Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units."

This subpart does not apply because the maximum design heat inputs for each of CAMC's boilers is less than 10 MM Btu/hr.

40 CFR 60 Subpart IIII, "Standards of Performance for Stationary Compression Ignition Internal Combustion Engines."

On July 11, 2006 the USEPA issued the NSPS for Stationary Compression Ignition (CI) Internal Combustion Engines (ICE). This rule outlines standards of performance for stationary compression ignition (CI) internal combustion engines (ICE). The rule segments applicability primarily by whether the applicant is an engine manufacturer, or an owner/operator.

CAMC's Teays Valley Hospital is subject to Subpart IIII because the emergency generator engine is a stationary CI ICE that commenced construction after July 11, 2005, and were manufactured after April 1, 2006 and is not a fire pump engine.

The generator engine is USEPA Certified for the engine manufacturer/Caterpillar and as such is not required to perform an initial

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performance test. The unit will be operated as an emergency generator and will be limited to 100 hours per year for operation during non-emergency times and 500 hours per year for total operation. Additionally, the unit will be required to maintain a maintenance plan and associated records.

<b>Table 10: U.S. EPA Certificate of Conformity for 2009 Model Year; 40 CFR 60 Subpart IIII Compliance.</b>			
<b>Diesel Generator Set</b>	<b>Engine Manufacturer/ Certificate Issued to:</b>	<b>Engine Family</b>	<b>Certificate Number</b>
C27 ACERT, 800 ekW/1000 kVA; 60 Hz/1800 rpm/480V	Caterpillar, Inc.	9CPXL27.0ESW	CPX-NRCI-09-11

40CFR63, Subpart ZZZZ “National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combust Engines.”

Subpart ZZZZ establishes national emission limitations and operating limitations for HAPs emitted from stationary RICE located at major and area sources of HAP emissions. The subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and operating limitations.

CAMC’s Teays Valley Hospital is classified as an area source of HAP emissions (individual HAP with potential emissions less than or equal to 10 ton/yr; aggregated HAP with potential emissions less than or equal to 25 ton/yr) and will remain so after the issuance of this construction permit.

The internal combustion engine for the emergency generator set is classified as an affected source under 40 CFR 63 Subpart ZZZZ. §§63.6590 ( c ) and ( c )(1) state that for engines located at an area source of HAPs, if the source meets the requirements of Subpart IIII that no requirements of Subpart ZZZZ apply to the engine. Thus, the engine is not subject to any requirements of this subpart.

40 CFR 63, Subpart JJJJJJ “National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources”

This rule does not apply because CAMC’s boilers meet the definition of a gas-fired boiler given in §63.11237:

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Gas-fired boiler includes any boiler that burns gaseous fuels not combined with any solid fuels and burns liquid fuel only during periods of gas curtailment, gas supply interruption, startups, or periodic testing on liquid fuel. Periodic testing of liquid fuel shall not exceed a combined total of 48 hours during any calendar year.

Also, permit R13-3303 was specifically written to insure that CAMC's boilers remain natural gas-fired boilers and that 40 CFR 63, Subpart JJJJJJ does not apply:

- 4.1.1. Boiler 1 and Boiler 2 shall be fired with pipeline quality natural gas at all times except when conducting periodic testing, and readiness checks of the boiler's ability to fire on diesel fuel; during periods of natural gas curtailment; or natural gas supply emergencies. The duration of such periodic testing and/or readiness checks shall not exceed more than 48 hours per year for each boiler.
- 4.2.1. For the purpose of demonstrating compliance with the maximum number of hours allowed for periodic testing, and readiness checks of the diesel fuel delivery system as established in Condition 4.1.1. of this permit, the permittee shall record the length of time and the date that periodic testing, and readiness checks of the diesel fuel delivery system were conducted for each boiler. Such records shall be maintained in accordance with Condition 3.4.1. of this permit.
- 4.5.2. The permittee shall submit reports to the Director no later than the 30<sup>th</sup> day following the end of the reporting period. Such reports shall cover the six month period of January to June and July to December for the diesel fuel consumed by Boilers 1 and 2 (for periodic testing and readiness checks) and generator set Generator 1 during the reporting period. These reports shall include the records required in Condition 4.4.4. and a certified statement signed by the permittee that the records of fuel supplier certifications submitted represent all of the diesel combusted during the reporting period. [40CFR§§60.48c(d), (e)(11), (f)(1) and (j)]

## TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

The combustion of natural gas and diesel fuel result in the formation of very small amounts of Hazardous Air Pollutants (HAP).

## AIR QUALITY IMPACT ANALYSIS

This is the construction of an existing minor source, as defined in 45CSR14. No modeling studies were performed.

## MONITORING OF OPERATIONS

The following requirements are in the monitoring section of permit R13-3303:

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- 4.2.1. For the purpose of demonstrating compliance with the maximum number of hours allowed for periodic testing, and readiness checks of the diesel fuel delivery system as established in Condition 4.1.1. of this permit, the permittee shall record the length of time and the date that periodic testing, and readiness checks of the diesel fuel delivery system were conducted for each boiler. Such records shall be maintained in accordance with Condition 3.4.1. of this permit.
- 4.2.2. For the purpose of demonstrating compliance with the maximum natural gas consumption limits given in Condition 4.1.3. of this permit, the permittee shall record on a monthly bases the amount of natural gas consumed by each of the boilers and the rolling 12 month total amount of natural gas consumed by each of the boilers. Such records shall be maintained in accordance with Condition 3.4.1. of this permit.
- 4.2.3. For the purpose of demonstrating compliance with the limitation on hours of operation for the emergency generator set as established in Condition 4.1.6.a. of this permit, the permittee shall record the number of hours the generator set operated during the calendar month and the reason for such operation. These records shall be maintained in accordance with Condition 3.4.1. [40 CFR §60.4211(f)]

## RECOMMENDATION TO DIRECTOR

The information supplied in permit application R13-3303 indicates that compliance with all applicable regulations will be achieved. Therefore, it is the writer's recommendation that this construction permit for two (2), small (4.5 MM Btu/hr), Natural Gas (primary)/ No. 2 Fuel Oil Cleaver Brooks boilers and one (1), 1,214 bhp, diesel-fueled emergency generator engine (Caterpillar) at CAMC's Teays Valley Hospital, Hurricane, Putnam County, WV facility be granted.

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John Legg  
Permit Writer

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August 30, 2016

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