REGULATION 13 PERMIT
CLASS II ADMINISTRATIVE UPDATE

Charleston Area Medical Center
Memorial Division
Charleston, Kanawha County, West Virginia

Prepared for:
Charleston Area Medical Center, Inc.
3200 MacCorkle Avenue, SE
Charleston, West Virginia 25304

Prepared by:
Triad Engineering, Inc.
10541 Teays Valley Road
Scott Depot, West Virginia 25560

July 2015

Contents

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF AIR QUALITY

601 57th Street, SE
Charleston, WV 25304
(304) 926-0475
www.dep.wv.gov/daq

APPLICATION FOR NSR PERMIT AND TITLE V PERMIT REVISION (OPTIONAL)

PLEASE CHECK ALL THAT APPLY TO **NSR (45CSR13)** (IF KNOWN):

☐ **CONSTRUCTION** ☐ **MODIFICATION** ☐ **RELOCATION**
☐ **CLASS I ADMINISTRATIVE UPDATE** ☐ **TEMPORARY**
☒ **CLASS II ADMINISTRATIVE UPDATE** ☒ **AFTER-THE-FACT**

PLEASE CHECK TYPE OF **45CSR30 (TITLE V)** REVISION (IF ANY):

☐ **ADMINISTRATIVE AMENDMENT** ☐ **MINOR MODIFICATION**
☐ **SIGNIFICANT MODIFICATION**

IF ANY BOX ABOVE IS CHECKED, INCLUDE TITLE V REVISION INFORMATION AS **ATTACHMENT S** TO THIS APPLICATION

FOR TITLE V FACILITIES ONLY: Please refer to "Title V Revision Guidance" in order to determine your Title V Revision options (Appendix A, "Title V Permit Revision Flowchart") and ability to operate with the changes requested in this Permit Application.

Section I. General

1. Name of applicant *(as registered with the WV Secretary of State's Office):*
Charleston Area Medical Center, Inc.

2. Federal Employer ID No. ***(FEIN):***
5 5 0 5 2 6 1 5 0

3. Name of facility *(if different from above):*
CAMC Memorial Hospital

4. The applicant is the:
☐ **OWNER** ☐ **OPERATOR** ☒ **BOTH**

5A. Applicant's mailing address:
3200 MacCorkle Avenue, SE
Charleston, WV 25304

5B. Facility's present physical address:
3200 MacCorkle Avenue, SE
Charleston, WV 25304

6. **West Virginia Business Registration.** Is the applicant a resident of the State of West Virginia? ☒ **YES** ☐ **NO**

- If **YES,** provide a copy of the **Certificate of Incorporation/Organization/Limited Partnership** (one page) including any name change amendments or other Business Registration Certificate as **Attachment A.**
- If **NO,** provide a copy of the **Certificate of Authority/Authority of L.L.C./Registration** (one page) including any name change amendments or other Business Certificate as **Attachment A.**

7. If applicant is a subsidiary corporation, please provide the name of parent corporation: **CAMC Health System, Inc.**

8. Does the applicant own, lease, have an option to buy or otherwise have control of the *proposed site?* ☒ **YES** ☐ **NO**

- If **YES,** please explain: **The applicant owns the proposed site.**
- If **NO,** you are not eligible for a permit for this source.

9. Type of plant or facility (stationary source) to be **constructed, modified, relocated, administratively updated** or **temporarily permitted** (e.g., coal preparation plant, primary crusher, etc.):
Installation of an additional emergency generator, discontinuing use of three boilers, and the installation of two new boilers located at the hospital facility.

10. North American Industry Classification System **(NAICS)** code for the facility:
62211

11A. DAQ Plant ID No. (for existing facilities only):
0 3 9 – 0 0 0 7 6

11B. List all current 45CSR13 and 45CSR30 (Title V) permit numbers associated with this process (for existing facilities only):
R13-2451D

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

12A.

- For **Modifications, Administrative Updates** or **Temporary permits** at an existing facility, please provide directions to the *present location* of the facility from the nearest state road;
- For **Construction** or **Relocation permits,** please provide directions to the *proposed new site location* from the nearest state road. Include a **MAP** as **Attachment B**.

The existing facility is located on a state road, State Route 61 (MacCorkle Avenue).

12.B. New site address (if applicable):	12C. Nearest city or town:	12D. County:
Not Applicable	**Charleston**	**Kanawha**
12.E. UTM Northing (KM): **4242.43**	12F. UTM Easting (KM): **447.12**	12G. UTM Zone: **17**

13. Briefly describe the proposed change(s) at the facility:
Facility emissions are being updated as a result of the installation of an additional emergency generator (Generator #6, 750 kW), discontinuing use of three boilers (Boilers #1, #2, and #3), and the installation of two new boilers (Boilers #8 and #9).

14A. Provide the date of anticipated installation or change: **August 2015** – If this is an **After-The-Fact** permit application, provide the date upon which the proposed change did happen: **See Attachment C**	14B. Date of anticipated Start-Up if a permit is granted: **September 2015**

14C. Provide a **Schedule** of the planned **Installation** of/**Change** to and **Start-Up** of each of the units proposed in this permit application as **Attachment C** (if more than one unit is involved).

15. Provide maximum projected **Operating Schedule** of activity/activities outlined in this application:
Hours Per Day **24** Days Per Week **7** Weeks Per Year **52** **(Generator is limited to 500 hours per year)**

16. Is demolition or physical renovation at an existing facility involved? ☒ **YES** ☐ **NO**

17**. Risk Management Plans.** If this facility is subject to 112(r) of the 1990 CAAA, or will become subject due to proposed changes (for applicability help see www.epa.gov/ceppo), submit your **Risk Management Plan (RMP)** to U. S. EPA Region III.

18**. Regulatory Discussion.** List all Federal and State air pollution control regulations that you believe are applicable to the proposed process *(if known).* A list of possible applicable requirements is also included in Attachment S of this application (Title V Permit Revision Information). Discuss applicability and proposed demonstration(s) of compliance *(if known).* Provide this information as **Attachment D.**

Section II. Additional attachments and supporting documents.

19. Include a check payable to WVDEP – Division of Air Quality with the appropriate **application fee** (per 45CSR22 and 45CSR13).

20. Include a **Table of Contents** as the first page of your application package.

21. Provide a **Plot Plan,** e.g. scaled map(s) and/or sketch(es) showing the location of the property on which the stationary source(s) is or is to be located as **Attachment E** (Refer to ***Plot Plan Guidance***) **.**

– Indicate the location of the nearest occupied structure (e.g. church, school, business, residence).

22. Provide a **Detailed Process Flow Diagram(s)** showing each proposed or modified emissions unit, emission point and control device as **Attachment F.**

23. Provide a **Process Description** as **Attachment G.**

– Also describe and quantify to the extent possible all changes made to the facility since the last permit review (if applicable).

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

24. Provide **Material Safety Data Sheets (MSDS)** for all materials processed, used or produced as **Attachment H.**

– For chemical processes, provide a MSDS for each compound emitted to the air.

25. Fill out the **Emission Units Table** and provide it as **Attachment I.**

26. Fill out the **Emission Points Data Summary Sheet (Table 1 and Table 2)** and provide it as **Attachment J.**

27. Fill out the **Fugitive Emissions Data Summary Sheet** and provide it as **Attachment K.**

28. Check all applicable **Emissions Unit Data Sheets** listed below:

☐ Bulk Liquid Transfer Operations	☐ Haul Road Emissions	☐ Quarry
☐ Chemical Processes	☐ Hot Mix Asphalt Plant	☐ Solid Materials Sizing, Handling and Storage Facilities
☐ Concrete Batch Plant	☐ Incinerator	☐ Storage Tanks
☐ Grey Iron and Steel Foundry	☒ Indirect Heat Exchanger	

☒ **General Emission Unit, specify Emergency Generator**

Fill out and provide the **Emissions Unit Data Sheet(s)** as **Attachment L.**

29. Check all applicable **Air Pollution Control Device Sheets** listed below:

☐ Absorption Systems	☐ Baghouse	☐ Flare
☐ Adsorption Systems	☐ Condenser	☐ Mechanical Collector
☐ Afterburner	☐ Electrostatic Precipitator	☐ Wet Collecting System

☐ Other Collectors, specify

Fill out and provide the **Air Pollution Control Device Sheet(s)** as **Attachment M.**

30. Provide all **Supporting Emissions Calculations** as **Attachment N,** or attach the calculations directly to the forms listed in Items 28 through 31.

31. **Monitoring, Recordkeeping, Reporting and Testing Plans.** Attach proposed monitoring, recordkeeping, reporting and testing plans in order to demonstrate compliance with the proposed emissions limits and operating parameters in this permit application. Provide this information as **Attachment O.**

➢ Please be aware that all permits must be practically enforceable whether or not the applicant chooses to propose such measures. Additionally, the DAQ may not be able to accept all measures proposed by the applicant. If none of these plans are proposed by the applicant, DAQ will develop such plans and include them in the permit.

32. **Public Notice.** At the time that the application is submitted, place a **Class I Legal Advertisement** in a newspaper of general circulation in the area where the source is or will be located (See 45CSR§13-8.3 through 45CSR§13-8.5 and ***Example Legal Advertisement*** for details). Please submit the **Affidavit of Publication** as **Attachment P** immediately upon receipt.

33**. Business Confidentiality Claims.** Does this application include confidential information (per 45CSR31)?

☐ **YES** ☒ **NO**

➢ If **YES,** identify each segment of information on each page that is submitted as confidential and provide justification for each segment claimed confidential, including the criteria under 45CSR§31-4.1, and in accordance with the DAQ's *"**Precautionary Notice – Claims of Confidentiality"*** guidance found in the ***General Instructions*** as **Attachment Q.**

Section III. Certification of Information

34. **Authority/Delegation of Authority.** Only required when someone other than the responsible official signs the application. Check applicable **Authority Form** below:

☐ Authority of Corporation or Other Business Entity	☐ Authority of Partnership
☐ Authority of Governmental Agency	☐ Authority of Limited Partnership

Submit completed and signed **Authority Form** as **Attachment R.**

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

35A. **Certification of Information.** To certify this permit application, a Responsible Official (per 45CSR§13-2.22 and 45CSR§30-2.28) or Authorized Representative shall check the appropriate box and sign below.

Certification of Truth, Accuracy, and Completeness

I, the undersigned ☒ **Responsible Official** / ☐ **Authorized Representative,** hereby certify that all information contained in this application and any supporting documents appended hereto, is true, accurate, and complete based on information and belief after reasonable inquiry I further agree to assume responsibility for the construction, modification and/or relocation and operation of the stationary source described herein in accordance with this application and any amendments thereto, as well as the Department of Environmental Protection, Division of Air Quality permit issued in accordance with this application, along with all applicable rules and regulations of the West Virginia Division of Air Quality and W.Va. Code § 22-5-1 et seq. (State Air Pollution Control Act). If the business or agency changes its Responsible Official or Authorized Representative, the Director of the Division of Air Quality will be notified in writing within 30 days of the official change.

Compliance Certification

Except for requirements identified in the Title V Application for which compliance is not achieved, I, the undersigned hereby certify that, based on information and belief formed after reasonable inquiry, all air contaminant sources identified in this application are in compliance with all applicable requirements.

SIGNATURE Glenn Crotty Jrs. *(Please use blue ink)* DATE: 7/17/2015 *(Please use blue ink)*

35B. Printed name of signee: **Dr. Glenn Crotty, Jr**		35C. Title: **Executive VP & COO**
35D. E-mail: **Glenn.Crotty@camc.org**	36E. Phone: **304.388.7647**	36F. FAX: **304.388.7696**
36A. Printed name of contact person (if different from above): **Nanci Keenan**		36B. Title: **Safety Manager**
36C. E-mail: **Nanci.Keenan@camc.org**	36D. Phone: **304.388.8890**	36E. FAX: **304.388.8891**

PLEASE CHECK ALL APPLICABLE ATTACHMENTS INCLUDED WITH THIS PERMIT APPLICATION:

- ☒ **Attachment A: Business Certificate**
- ☒ **Attachment B: Map(s)**
- ☒ **Attachment C: Installation and Start Up Schedule**
- ☒ **Attachment D: Regulatory Discussion**
- ☒ **Attachment E: Plot Plan**
- ☒ **Attachment F: Detailed Process Flow Diagram(s)**
- ☒ **Attachment G: Process Description**
- ☒ **Attachment H: Material Safety Data Sheets (MSDS)**
- ☒ **Attachment I: Emission Units Table**
- ☒ **Attachment J: Emission Points Data Summary Sheet**
- ☒ **Attachment K: Fugitive Emissions Data Summary Sheet**
- ☒ **Attachment L: Emissions Unit Data Sheet(s)**
- ☐ **Attachment M: Air Pollution Control Device Sheet(s)**
- ☒ **Attachment N: Supporting Emissions Calculations**
- ☒ **Attachment O: Monitoring/Recordkeeping/Reporting/Testing Plans**
- ☒ **Attachment P: Public Notice**
- ☐ **Attachment Q: Business Confidential Claims**
- ☐ **Attachment R: Authority Forms**
- ☐ **Attachment S: Title V Permit Revision Information**
- ☒ **Application Fee**

Please mail an original and three (3) copies of the complete permit application with the signature(s) to the DAQ, Permitting Section, at the address listed on the first page of this application. Please DO NOT fax permit applications.

FOR AGENCY USE ONLY – IF THIS IS A TITLE V SOURCE:

- ☐ ***Forward 1 copy of the application to the Title V Permitting Group and:***
- ☐ ***For Title V Administrative Amendments:***
  - ☐ ***NSR permit writer should notify Title V permit writer of draft permit,***
- ☐ ***For Title V Minor Modifications:***
  - ☐ ***Title V permit writer should send appropriate notification to EPA and affected states within 5 days of receipt,***
  - ☐ ***NSR permit writer should notify Title V permit writer of draft permit.***
- ☐ ***For Title V Significant Modifications processed in parallel with NSR Permit revision:***
  - ☐ ***NSR permit writer should notify a Title V permit writer of draft permit,***
  - ☐ ***Public notice should reference both 45CSR13 and Title V permits,***
  - ☐ ***EPA has 45 day review period of a draft permit.***

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

Attachment A

Business Certificate

WEST VIRGINIA
STATE TAX DEPARTMENT

BUSINESS REGISTRATION CERTIFICATE

ISSUED TO:
CHARLESTON AREA MEDICAL CENTER INC
DBA CHARLESTON AREA MEDICAL CENTER
PO BOX 1547
CHARLESTON, WV 25326-1547

BUSINESS REGISTRATION ACCOUNT NUMBER: 1035-7157

This certificate is issued on: 08/11/2010

This certificate is issued by
the West Virginia State Tax Commissioner
in accordance with Chapter 11, Article 12, of the West Virginia Code

The person or organization identified on this certificate is registered to conduct business in the State of West Virginia at the location above.

This certificate is not transferrable and must be displayed at the location for which issued.

This certificate shall be permanent until cessation of the business for which the certificate of registration was granted or until it is suspended, revoked or cancelled by the Tax Commissioner.

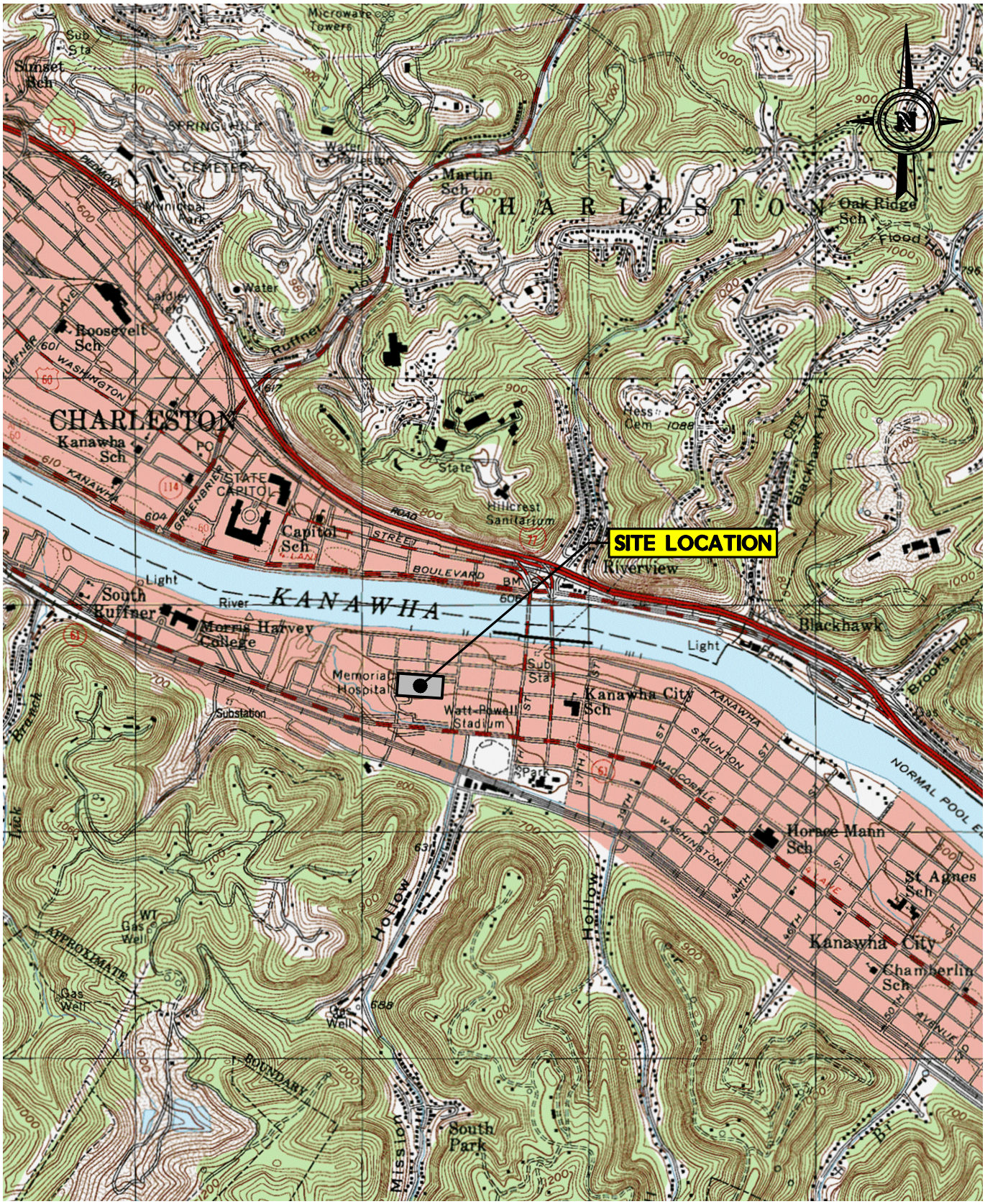
Change in name or change of location shall be considered a cessation of the business and a new certificate shall be required.

TRAVELING/STREET VENDORS: Must carry a copy of this certificate in every vehicle operated by them. CONTRACTORS, DRILLING OPERATORS, TIMBER/LOGGING OPERATIONS: Must have a copy of this certificate displayed at every job site within West Virginia.

atL006 v.3
L0708060928

Attachment B

Area Map



CADD FILE: 14-0001 Site Location.dwg		CHARLESTON AREA MEDICAL CENTER MEMORIAL DIVISION - CLASS II ADMINISTRATIVE UPDATE CHARLESTON, KANAWHA COUNTY, WV **AREA MAP**
DRAWN BY: SJF	CHECKED BY: SC	
DATE: 7/8/2015	SCALE: 1" = 2000'	PROJECT No.: 04-14-0001 FIGURE No.: B

TRIAD ENGINEERING, INC.
www.triadeng.com
10541 TEAYS VALLEY ROAD
SCOTT DEPOT, WV 25560

Plotted by: sfore
c:\users\sfore\appdata\local\microsoft\windows\temporary internet files\content.outlook\rctvuap\14-0001 site location.dwg

Attachment C

Installation and Start Up Schedule

Attachment C

Install and Start Up Schedule

CAMC Memorial Hospital installed a CAT 750 kW emergency generator in August 2014, at which time it was also tested for proper operation. In addition, CAMC Memorial Hospital will install one Victory Energy 500 HP boiler and one Victory Energy 800 HP boiler following approval of this application. Once installed and following notice of acceptance of this Class II Administrative Update, the boilers will be tested for proper operation. The generator is necessary to provide electricity in the event the facility experiences a loss of power and will therefore not operate continuously. The boilers are necessary to provide steam and hot water for vital needs, such as space heating and a variety of process uses.

Attachment D

Regulatory Discussion

Attachment D

Regulatory Discussion

Permit conditions under WVDEP rules are expected to be the same as the current permit conditions. The new boilers are subject to 40 CFR 60, Subpart Dc (NSPS), and 40 CFR 63, Subpart JJJJJJ (NESHAP). The new generator is subject to 40 CFR 60, Subpart IIII. New permit conditions will be required for these regulations. The pertinent provisions of Subpart Dc and Subpart JJJJJJ for the boilers and Subpart IIII for the emergency generator are included below.

New Source Performance Standard, 40 CFR 60, Subpart Dc Applicable Provisions

§60.40c Applicability and delegation of authority.

This subpart applies to each steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989 and that has a maximum design heat input capacity of 29 megawatts (MW) (100 million British thermal units per hour (MMBtu/h)) or less, but greater than or equal to 2.9 MW (10 MMBtu/h).

§60.42c Standard for sulfur dioxide (SO_2).

(d) On and after the date on which the initial performance test is completed or required to be completed under §60.8, whichever date comes first, no owner or operator of an affected facility that combusts oil shall cause to be discharged into the atmosphere from that affected facility any gases that contain SO_2 in excess of 215 ng/J (0.50 lb/MMBtu) heat input from oil; or, as an alternative, no owner or operator of an affected facility that combusts oil shall combust oil in the affected facility that contains greater than 0.5 weight percent sulfur. The percent reduction requirements are not applicable to affected facilities under this paragraph.

(h) For affected facilities listed under paragraphs (h)(1), (2), (3), or (4) of this section, compliance with the emission limits or fuel oil sulfur limits under this section may be determined based on a certification from the fuel supplier, as described under §60.48c(f), as applicable.

> (1) Distillate oil-fired affected facilities with heat input capacities between 2.9 and 29 MW (10 and 100 MMBtu/hr).

(i) The SO_2 emission limits, fuel oil sulfur limits, and percent reduction requirements under this section apply at all times, including periods of startup, shutdown, and malfunction.

§60.43c Standard for particulate matter (PM).

An owner or operator of an affected facility that commences construction, reconstruction, or modification after February 28, 2005, and that combusts only oil that contains no more than 0.50 weight percent sulfur or a mixture of 0.50 weight percent sulfur oil with other fuels not subject to a PM standard under §60.43c and not using a post-combustion technology (except a wet scrubber) to reduce PM or SO_2 emissions is not subject to the PM limit in this section.

§60.44c Compliance and performance test methods and procedures for sulfur dioxide.

(h) For affected facilities subject to §60.42c(h)(1), (2), or (3) where the owner or operator seeks to demonstrate compliance with the SO_2 standards based on fuel supplier certification, the performance test shall consist of the certification from the fuel supplier, as described in §60.48c(f), as applicable.

§60.48c Reporting and recordkeeping requirements.

(a) The owner or operator of each affected facility shall submit notification of the date of construction or reconstruction and actual startup, as provided by §60.7 of this part. This notification shall include:

(1) The design heat input capacity of the affected facility and identification of fuels to be combusted in the affected facility.

(3) The annual capacity factor at which the owner or operator anticipates operating the affected facility based on all fuels fired and based on each individual fuel fired.

(d) The owner or operator of each affected facility subject to the SO_2 emission limits, fuel oil sulfur limits, or percent reduction requirements under §60.42c shall submit reports to the Administrator.

(e) The owner or operator of each affected facility subject to the SO_2 emission limits, fuel oil sulfur limits, or percent reduction requirements under §60.42c shall keep records and submit reports as required under paragraph (d) of this section, including the following information, as applicable.

(1) Calendar dates covered in the reporting period.

(11) If fuel supplier certification is used to demonstrate compliance, records of fuel supplier certification as described under paragraph (f)(1), (2), (3), or (4) of this section, as applicable. In addition to records of fuel supplier certifications, the report shall include a certified statement signed by the owner or operator of the affected facility that the records of fuel supplier certifications submitted represent all of the fuel combusted during the reporting period.

(f) Fuel supplier certification shall include the following information:

(1) For distillate oil:

(i) The name of the oil supplier;

(ii) A statement from the oil supplier that the oil complies with the specifications under the definition of distillate oil in §60.41c; and

(iii) The sulfur content or maximum sulfur content of the oil.

(4) For other fuels:

(i) The name of the supplier of the fuel;

(ii) The potential sulfur emissions rate or maximum potential sulfur emissions rate of the fuel in ng/J heat input; and

(iii) The method used to determine the potential sulfur emissions rate of the fuel.

(2) As an alternative to daily recording of fuel use amounts, the owner or operator of an affected facility that combusts only natural gas, wood, fuels using fuel certification in §60.48c(f) to demonstrate compliance with the SO2 standard, fuels not subject to an emissions standard

(excluding opacity), or a mixture of these fuels may elect to record and maintain records of the amount of each fuel combusted during each calendar month.

(3) As an alternative to daily recording of fuel use amounts, the owner or operator of an affected facility or multiple affected facilities located on a contiguous property unit where the only fuels combusted in any steam generating unit (including steam generating units not subject to this subpart) at that property are natural gas, wood, distillate oil meeting the most current requirements in §60.42C to use fuel certification to demonstrate compliance with the SO2 standard, and/or fuels, excluding coal and residual oil, not subject to an emissions standard (excluding opacity) may elect to record and maintain records of the total amount of each steam generating unit fuel delivered to that property during each calendar month.

(i) All records required under this section shall be maintained by the owner or operator of the affected facility for a period of two years following the date of such record.

(j) The reporting period for the reports required under this subpart is each six-month period. All reports shall be submitted to the Administrator and shall be postmarked by the 30th day following the end of the reporting period.

National Emission Standards for Hazardous Air Pollutants Subpart JJJJJJ Applicable Provisions

Requirements from 40 CFR 63, Subpart JJJJJJ applicable to new, oil-fired boilers with greater than 10 MMBtu/hr heat input, and with continuous oxygen trim, combusting only oil with less than 0.50 weight percent sulfur.

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§63.11196 What are my compliance dates?

(c) If you start up a new affected source after May 20, 2011, you must achieve compliance with the provisions of this subpart upon startup of your affected source.

§63.11201 What standards must I meet?

(b) You must comply with each work practice standard, emission reduction measure, and management practice specified in Table 2 to this subpart that applies to your boiler.

Table 2 to Subpart JJJJJJ of Part 63—Work Practice Standards, Emission Reduction Measures, and Management Practices

If your boiler is in this subcategory:	You must meet the following:
1. Existing or new oil-fired boilers (units with heat input capacity of 10 MMBtu/hr or greater)	Minimize the boiler's startup and shutdown periods and conduct startups and shutdowns according to the manufacturer's recommended procedures. If manufacturer's recommended procedures are not available, you must follow recommended procedures for a unit of similar design for which manufacturer's recommended procedures are available.

15. New oil-fired boilers with an oxygen trim system that maintains an optimum air-to-fuel ratio that would otherwise be subject to a biennial tune-up	Conduct a tune-up of the boiler every 5 years as specified in §63.11223.

(d) These standards apply at all times the affected boiler is operating.

§63.11205 What are my general requirements for complying with this subpart?

(a) At all times you must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require you to make any further efforts to reduce emissions if levels required by this standard have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator that may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

§63.11210 What are my initial compliance requirements and by what date must I conduct them?

(e) For new or reconstructed oil-fired boilers that combust only oil that contains no more than 0.50 weight percent sulfur or a mixture of 0.50 weight percent sulfur oil with other fuels not subject to a PM emission limit under this subpart and that do not use a post-combustion technology (except a wet scrubber) to reduce particulate matter (PM) or sulfur dioxide emissions, you are not subject to the PM emission limit in Table 1 of this subpart providing you monitor and record on a monthly basis the type of fuel combusted.

(f) For new or reconstructed affected boilers that have applicable work practice standards or management practices, you are not required to complete an initial performance tune-up, but you are required to complete the applicable biennial or 5-year tune-up as specified in §63.11223 no later than 25 months or 61 months, respectively, after the initial startup of the new or reconstructed affected source.

§63.11223 How do I demonstrate continuous compliance with the work practice and management practice standards?

(a) For affected sources subject to the work practice standard or the management practices of a tune-up, you must conduct a performance tune-up according to paragraph (b) of this section and keep records as required in §63.11225(c) to demonstrate continuous compliance. You must conduct the tune-up while burning the type of fuel (or fuels in the case of boilers that routinely burn two types of fuels at the same time) that provided the majority of the heat input to the boiler over the 12 months prior to the tune-up.

(c) Boilers with an oxygen trim system that maintains an optimum air-to-fuel ratio that would otherwise be subject to a biennial tune-up must conduct a tune-up of the boiler every 5 years as specified in paragraphs (b)(1) through (7) of this section. Each 5-year tune-up must be conducted no more than 61 months after the previous tune-up. For a new or reconstructed boiler with an oxygen trim system, the first 5-year tune-up must be no later than 61 months after the initial startup. You may delay the burner inspection specified in paragraph (b)(1) of this section and inspection of the system controlling the air-to-fuel ratio specified in paragraph (b)(3) of this section until the next scheduled unit shutdown, but you must inspect each burner and system controlling the air-to-fuel ratio at least once every 72 months.

Paragraph (b) is superceded by paragraph (c) for general conditions, specific provisions follow:

(b)(1) As applicable, inspect the burner, and clean or replace any components of the burner as necessary (you may delay the burner inspection until the next scheduled unit shutdown, not to exceed 36 months from the previous inspection). Units that produce electricity for sale may delay the burner inspection until the first outage, not to exceed 36 months from the previous inspection.

(b)(2) Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications, if available.

(b)(3) Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly (you may delay the inspection until the next scheduled unit shutdown, not to exceed 36 months from the previous inspection). Units that produce electricity for sale may delay the inspection until the first outage, not to exceed 36 months from the previous inspection.

(b)(4) Optimize total emissions of CO. This optimization should be consistent with the manufacturer's specifications, if available, and with any nitrogen oxide requirement to which the unit is subject.

(b)(5) Measure the concentrations in the effluent stream of CO in parts per million, by volume, and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made). Measurements may be taken using a portable CO analyzer.

(b)(6) Maintain on-site and submit, if requested by the Administrator, a report containing the information in paragraphs (b)(6)(i) through (iii) of this section.

(i) The concentrations of CO in the effluent stream in parts per million, by volume, and oxygen in volume percent, measured at high fire or typical operating load, before and after the tune-up of the boiler.

(ii) A description of any corrective actions taken as a part of the tune-up of the boiler.

(iii) The type and amount of fuel used over the 12 months prior to the tune-up of the boiler, but only if the unit was physically and legally capable of using more than one type of fuel during that period. Units sharing a fuel meter may estimate the fuel use by each unit.

(b)(7) If the unit is not operating on the required date for a tune-up, the tune-up must be conducted within 30 days of startup.

§63.11225 What are my notification, reporting, and recordkeeping requirements?

(a) You must submit the notifications specified in paragraphs (a)(1) through (5) of this section to the administrator.

(1) You must submit all of the notifications in §§63.7(b); 63.8(e) and (f); and 63.9(b) through (e), (g), and (h) that apply to you by the dates specified in those sections except as specified in paragraphs (a)(2) and (4) of this section.

(2) An Initial Notification must be submitted within 120 days after the source becomes subject to the standard.

(4) You must submit the Notification of Compliance Status no later than 120 days after the applicable compliance date specified in §63.11196. You must submit the Notification of Compliance Status in accordance with paragraphs (a)(4)(i) and (vi) of this section. The Notification of Compliance Status must include the information and certification(s) of compliance in paragraphs (a)(4)(i) through (v) of this section, as applicable, and signed by a responsible official.

(i) You must submit the information required in §63.9(h)(2), except the information listed in §63.9(h)(2)(i)(B), (D), (E), and (F).

(v) For units that do not qualify for a statutory exemption as provided in section 129(g)(1) of the Clean Air Act: “No secondary materials that are solid waste were combusted in any affected unit.”

(vi) The notification must be submitted electronically using the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) (www.epa.gov/cdx). However, if the reporting form specific to this subpart is not available in CEDRI at the time that the report is due, the written Notification of Compliance Status must be submitted to the Administrator at the appropriate address listed in §63.13.

(b) You must prepare, by March 1 of each year, and submit to the delegated authority upon request, an annual compliance certification report for the previous calendar year containing the information specified in paragraphs (b)(1) through (4) of this section. You must submit the report by March 15 if you had any instance described by paragraph (b)(3) of this section. For boilers that are subject only to a requirement to conduct a biennial or 5-year tune-up according to §63.11223(a) and not subject to emission limits or operating limits, you may prepare only a biennial or 5-year compliance report as specified in paragraphs (b)(1) and (2) of this section.

(1) Company name and address.

(2) Statement by a responsible official, with the official's name, title, phone number, email address, and signature, certifying the truth, accuracy and completeness of the notification and a statement of whether the source has complied with all the relevant standards and other requirements of this subpart. Your notification must include the following certification(s) of compliance, as applicable, and signed by a responsible official:

(i) “This facility complies with the requirements in §63.11223 to conduct a biennial or 5-year tune-up, as applicable, of each boiler.”

(ii) For units that do not qualify for a statutory exemption as provided in section 129(g)(1) of the Clean Air Act: “No secondary materials that are solid waste were combusted in any affected unit.”

(iii) “This facility complies with the requirement in §§63.11214(d) and 63.11223(g) to minimize the boiler's time spent during startup and shutdown and to conduct startups and shutdowns according to the manufacturer's recommended procedures or procedures

specified for a boiler of similar design if manufacturer's recommended procedures are not available."

(3) If the source experiences any deviations from the applicable requirements during the reporting period, include a description of deviations, the time periods during which the deviations occurred, and the corrective actions taken.

(4) The total fuel use by each affected boiler subject to an emission limit, for each calendar month within the reporting period, including, but not limited to, a description of the fuel, whether the fuel has received a non-waste determination by you or EPA through a petition process to be a non-waste under §241.3(c), whether the fuel(s) were processed from discarded non-hazardous secondary materials within the meaning of §241.3, and the total fuel usage amount with units of measure.

(c) You must maintain the records specified in paragraphs (c)(1) through (7) of this section.

(1) As required in §63.10(b)(2)(xiv), you must keep a copy of each notification and report that you submitted to comply with this subpart and all documentation supporting any Initial Notification or Notification of Compliance Status that you submitted.

(2) You must keep records to document conformance with the work practices, emission reduction measures, and management practices required by §63.11214 and §63.11223 as specified in paragraphs (c)(2)(i) through (vi) of this section.

(i) Records must identify each boiler, the date of tune-up, the procedures followed for tune-up, and the manufacturer's specifications to which the boiler was tuned.

(iv) For each boiler subject to an emission limit in Table 1 to this subpart, you must also keep records of monthly fuel use by each boiler, including the type(s) of fuel and amount(s) used.

(4) Records of the occurrence and duration of each malfunction of the boiler, or of the associated air pollution control and monitoring equipment.

(5) Records of actions taken during periods of malfunction to minimize emissions in accordance with the general duty to minimize emissions in §63.11205(a), including corrective actions to restore the malfunctioning boiler, air pollution control, or monitoring equipment to its normal or usual manner of operation.

(d) Your records must be in a form suitable and readily available for expeditious review. You must keep each record for 5 years following the date of each recorded action. You must keep each record on-site or be accessible from a central location by computer or other means that instantly provide access at the site for at least 2 years after the date of each recorded action. You may keep the records off site for the remaining 3 years.

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

§60.4200 Am I subject to this subpart?

(a) The provisions of this subpart are applicable to manufacturers, owners, and operators of stationary compression ignition (CI) internal combustion engines (ICE) and other persons as specified in paragraphs (a)(1) through (4) of this section. For the purposes of this subpart, the date that construction commences is the date the engine is ordered by the owner or operator.

(1) Manufacturers of stationary CI ICE with a displacement of less than 30 liters per cylinder where the model year is:

(i) 2007 or later, for engines that are not fire pump engines;

(ii) The model year listed in Table 3 to this subpart or later model year, for fire pump engines.

(2) Owners and operators of stationary CI ICE that commence construction after July 11, 2005, where the stationary CI ICE are:

(i) Manufactured after April 1, 2006, and are not fire pump engines, or

(ii) Manufactured as a certified National Fire Protection Association (NFPA) fire pump engine after July 1, 2006.

(3) Owners and operators of any stationary CI ICE that are modified or reconstructed after July 11, 2005 and any person that modifies or reconstructs any stationary CI ICE after July 11, 2005.

(4) The provisions of §60.4208 of this subpart are applicable to all owners and operators of stationary CI ICE that commence construction after July 11, 2005.

(b) The provisions of this subpart are not applicable to stationary CI ICE being tested at a stationary CI ICE test cell/stand.

(c) If you are an owner or operator of an area source subject to this subpart, you are exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71, provided you are not required to obtain a permit under 40 CFR 70.3(a) or 40 CFR 71.3(a) for a reason other than your status as an area source under this subpart. Notwithstanding the previous sentence, you must continue to comply with the provisions of this subpart applicable to area sources.

(d) Stationary CI ICE may be eligible for exemption from the requirements of this subpart as described in 40 CFR part 1068, subpart C (or the exemptions described in 40 CFR part 89, subpart J and 40 CFR part 94, subpart J, for engines that would need to be certified to standards in those parts), except that owners and operators, as well as manufacturers, may be eligible to request an exemption for national security.

(e) Owners and operators of facilities with CI ICE that are acting as temporary replacement units and that are located at a stationary source for less than 1 year and that have been properly certified as meeting the standards that would be applicable to such engine under the appropriate nonroad engine provisions, are not required to meet any other provisions under this subpart with regard to such engines.

§60.4205 What emission standards must I meet for emergency engines if I am an owner or operator of a stationary CI internal combustion engine?

(a) Owners and operators of pre-2007 model year emergency stationary CI ICE with a displacement of less than 10 liters per cylinder that are not fire pump engines must comply with the emission standards in Table 1 to this subpart. Owners and operators of pre-2007 model year emergency stationary CI ICE

with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder that are not fire pump engines must comply with the emission standards in 40 CFR 94.8(a)(1).

(b) Owners and operators of 2007 model year and later emergency stationary CI ICE with a displacement of less than 30 liters per cylinder that are not fire pump engines must comply with the emission standards for new nonroad CI engines in §60.4202, for all pollutants, for the same model year and maximum engine power for their 2007 model year and later emergency stationary CI ICE.

(c) Owners and operators of fire pump engines with a displacement of less than 30 liters per cylinder must comply with the emission standards in table 4 to this subpart, for all pollutants.

(d) Owners and operators of emergency stationary CI engines with a displacement of greater than or equal to 30 liters per cylinder must meet the requirements in this section.

(1) For engines installed prior to January 1, 2012, limit the emissions of NO_x in the stationary CI internal combustion engine exhaust to the following:

(i) 17.0 g/KW-hr (12.7 g/HP-hr) when maximum engine speed is less than 130 rpm;

(ii) $45 \cdot n^{-0.2}$ g/KW-hr ($34 \cdot n^{-0.2}$ g/HP-hr) when maximum engine speed is 130 or more but less than 2,000 rpm, where n is maximum engine speed; and

(iii) 9.8 g/kW-hr (7.3 g/HP-hr) when maximum engine speed is 2,000 rpm or more.

(2) For engines installed on or after January 1, 2012, limit the emissions of NO_x in the stationary CI internal combustion engine exhaust to the following:

(i) 14.4 g/KW-hr (10.7 g/HP-hr) when maximum engine speed is less than 130 rpm;

(ii) $44 \cdot n^{-0.23}$ g/KW-hr ($33 \cdot n^{-0.23}$ g/HP-hr) when maximum engine speed is greater than or equal to 130 but less than 2,000 rpm and where n is maximum engine speed; and

(iii) 7.7 g/KW-hr (5.7 g/HP-hr) when maximum engine speed is greater than or equal to 2,000 rpm.

(3) Limit the emissions of PM in the stationary CI internal combustion engine exhaust to 0.40 g/KW-hr (0.30 g/HP-hr).

(e) Owners and operators of emergency stationary CI ICE with a displacement of less than 30 liters per cylinder who conduct performance tests in-use must meet the NTE standards as indicated in §60.4212.

(f) Owners and operators of any modified or reconstructed emergency stationary CI ICE subject to this subpart must meet the emission standards applicable to the model year, maximum engine power, and displacement of the modified or reconstructed CI ICE that are specified in paragraphs (a) through (e) of this section.

§60.4206 How long must I meet the emission standards if I am an owner or operator of a stationary CI internal combustion engine?

Owners and operators of stationary CI ICE must operate and maintain stationary CI ICE that achieve the emission standards as required in §§60.4204 and 60.4205 over the entire life of the engine

§60.4207 What fuel requirements must I meet if I am an owner or operator of a stationary CI internal combustion engine subject to this subpart?

(a) Beginning October 1, 2007, owners and operators of stationary CI ICE subject to this subpart that use diesel fuel must use diesel fuel that meets the requirements of 40 CFR 80.510(a).

(b) Beginning October 1, 2010, owners and operators of stationary CI ICE subject to this subpart with a displacement of less than 30 liters per cylinder that use diesel fuel must use diesel fuel that meets the requirements of 40 CFR 80.510(b) for nonroad diesel fuel, except that any existing diesel fuel purchased (or otherwise obtained) prior to October 1, 2010, may be used until depleted.

(c) [Reserved]

(d) Beginning June 1, 2012, owners and operators of stationary CI ICE subject to this subpart with a displacement of greater than or equal to 30 liters per cylinder are no longer subject to the requirements of paragraph (a) of this section, and must use fuel that meets a maximum per-gallon sulfur content of 1,000 parts per million (ppm).

(e) Stationary CI ICE that have a national security exemption under §60.4200(d) are also exempt from the fuel requirements in this section.

§60.4209 What are the monitoring requirements if I am an owner or operator of a stationary CI internal combustion engine?

If you are an owner or operator, you must meet the monitoring requirements of this section. In addition, you must also meet the monitoring requirements specified in §60.4211.

(a) If you are an owner or operator of an emergency stationary CI internal combustion engine that does not meet the standards applicable to non-emergency engines, you must install a non-resettable hour meter prior to startup of the engine.

(b) If you are an owner or operator of a stationary CI internal combustion engine equipped with a diesel particulate filter to comply with the emission standards in §60.4204, the diesel particulate filter must be installed with a backpressure monitor that notifies the owner or operator when the high backpressure limit of the engine is approached.

§60.4211 What are my compliance requirements if I am an owner or operator of a stationary CI internal combustion engine?

(a) If you are an owner or operator and must comply with the emission standards specified in this subpart, you must do all of the following, except as permitted under paragraph (g) of this section:

(1) Operate and maintain the stationary CI internal combustion engine and control device according to the manufacturer's emission-related written instructions;

(2) Change only those emission-related settings that are permitted by the manufacturer; and

(3) Meet the requirements of 40 CFR parts 89, 94 and/or 1068, as they apply to you.

(c) If you are an owner or operator of a 2007 model year and later stationary CI internal combustion engine and must comply with the emission standards specified in §60.4204(b) or §60.4205(b), or if you are an owner or operator of a CI fire pump engine that is manufactured during or after the model year that applies to your fire pump engine power rating in table 3 to this subpart and must comply with the emission

standards specified in §60.4205(c), you must comply by purchasing an engine certified to the emission standards in §60.4204(b), or §60.4205(b) or (c), as applicable, for the same model year and maximum (or in the case of fire pumps, NFPA nameplate) engine power. The engine must be installed and configured according to the manufacturer's emission-related specifications, except as permitted in paragraph (g) of this section.

(d) If you are an owner or operator and must comply with the emission standards specified in §60.4204(c) or §60.4205(d), you must demonstrate compliance according to the requirements specified in paragraphs (d)(1) through (3) of this section.

(1) Conducting an initial performance test to demonstrate initial compliance with the emission standards as specified in §60.4213.

(2) Establishing operating parameters to be monitored continuously to ensure the stationary internal combustion engine continues to meet the emission standards. The owner or operator must petition the Administrator for approval of operating parameters to be monitored continuously. The petition must include the information described in paragraphs (d)(2)(i) through (v) of this section.

(i) Identification of the specific parameters you propose to monitor continuously;

(ii) A discussion of the relationship between these parameters and NO_x and PM emissions, identifying how the emissions of these pollutants change with changes in these parameters, and how limitations on these parameters will serve to limit NO_x and PM emissions;

(iii) A discussion of how you will establish the upper and/or lower values for these parameters which will establish the limits on these parameters in the operating limitations;

(iv) A discussion identifying the methods and the instruments you will use to monitor these parameters, as well as the relative accuracy and precision of these methods and instruments; and

(v) A discussion identifying the frequency and methods for recalibrating the instruments you will use for monitoring these parameters.

(3) For non-emergency engines with a displacement of greater than or equal to 30 liters per cylinder, conducting annual performance tests to demonstrate continuous compliance with the emission standards as specified in §60.4213.

(e) If you are an owner or operator of a modified or reconstructed stationary CI internal combustion engine and must comply with the emission standards specified in §60.4204(e) or §60.4205(f), you must demonstrate compliance according to one of the methods specified in paragraphs (e)(1) or (2) of this section.

(1) Purchasing, or otherwise owning or operating, an engine certified to the emission standards in §60.4204(e) or §60.4205(f), as applicable.

(2) Conducting a performance test to demonstrate initial compliance with the emission standards according to the requirements specified in §60.4212 or §60.4213, as appropriate. The test must be conducted within 60 days after the engine commences operation after the modification or reconstruction.

(f) If you own or operate an emergency stationary ICE, you must operate the emergency stationary ICE according to the requirements in paragraphs (f)(1) through (3) of this section. In order for the engine to be considered an emergency stationary ICE under this subpart, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency

situations for 50 hours per year, as described in paragraphs (f)(1) through (3) of this section, is prohibited. If you do not operate the engine according to the requirements in paragraphs (f)(1) through (3) of this section, the engine will not be considered an emergency engine under this subpart and must meet all requirements for non-emergency engines.

(1) There is no time limit on the use of emergency stationary ICE in emergency situations.

(2) You may operate your emergency stationary ICE for any combination of the purposes specified in paragraphs (f)(2)(i) through (iii) of this section for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraph (f)(3) of this section counts as part of the 100 hours per calendar year allowed by this paragraph (f)(2).

(i) Emergency stationary ICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency ICE beyond 100 hours per calendar year.

(ii) Emergency stationary ICE may be operated for emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see §60.17), or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3.

(iii) Emergency stationary ICE may be operated for periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.

(3) Emergency stationary ICE may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in paragraph (f)(2) of this section. Except as provided in paragraph (f)(3)(i) of this section, the 50 hours per calendar year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

(i) The 50 hours per year for non-emergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met:

(A) The engine is dispatched by the local balancing authority or local transmission and distribution system operator;

(B) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.

(C) The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.

(D) The power is provided only to the facility itself or to support the local transmission and distribution system.

(E) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator.

(g) If you do not install, configure, operate, and maintain your engine and control device according to the manufacturer's emission-related written instructions, or you change emission-related settings in a way that is not permitted by the manufacturer, you must demonstrate compliance as follows:

(1) If you are an owner or operator of a stationary CI internal combustion engine with maximum engine power less than 100 HP, you must keep a maintenance plan and records of conducted maintenance to demonstrate compliance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, if you do not install and configure the engine and control device according to the manufacturer's emission-related written instructions, or you change the emission-related settings in a way that is not permitted by the manufacturer, you must conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of such action.

(2) If you are an owner or operator of a stationary CI internal combustion engine greater than or equal to 100 HP and less than or equal to 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of startup, or within 1 year after an engine and control device is no longer installed, configured, operated, and maintained in accordance with the manufacturer's emission-related written instructions, or within 1 year after you change emission-related settings in a way that is not permitted by the manufacturer.

(3) If you are an owner or operator of a stationary CI internal combustion engine greater than 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of startup, or within 1 year after an engine and control device is no longer installed, configured, operated, and maintained in accordance with the manufacturer's emission-related written instructions, or within 1 year after you change emission-related settings in a way that is not permitted by the manufacturer. You must conduct subsequent performance testing every 8,760 hours of engine operation or 3 years, whichever comes first, thereafter to demonstrate compliance with the applicable emission standards.

§60.4212 What test methods and other procedures must I use if I am an owner or operator of a stationary CI internal combustion engine with a displacement of less than 30 liters per cylinder?

Owners and operators of stationary CI ICE with a displacement of less than 30 liters per cylinder who conduct performance tests pursuant to this subpart must do so according to paragraphs (a) through (e) of this section.

(a) The performance test must be conducted according to the in-use testing procedures in 40 CFR part 1039, subpart F, for stationary CI ICE with a displacement of less than 10 liters per cylinder, and according to 40 CFR part 1042, subpart F, for stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder.

(b) Exhaust emissions from stationary CI ICE that are complying with the emission standards for new CI engines in 40 CFR part 1039 must not exceed the not-to-exceed (NTE) standards for the same model year and maximum engine power as required in 40 CFR 1039.101(e) and 40 CFR 1039.102(g)(1),

except as specified in 40 CFR 1039.104(d). This requirement starts when NTE requirements take effect for nonroad diesel engines under 40 CFR part 1039.

(c) Exhaust emissions from stationary CI ICE that are complying with the emission standards for new CI engines in 40 CFR 89.112 or 40 CFR 94.8, as applicable, must not exceed the NTE numerical requirements, rounded to the same number of decimal places as the applicable standard in 40 CFR 89.112 or 40 CFR 94.8, as applicable, determined from the following equation:

$$\text{NTE requirement for each pollutant} = (1.25) \times (\text{STD}) \qquad \text{(Eq. 1)}$$

Where:

STD = The standard specified for that pollutant in 40 CFR 89.112 or 40 CFR 94.8, as applicable.

Alternatively, stationary CI ICE that are complying with the emission standards for new CI engines in 40 CFR 89.112 or 40 CFR 94.8 may follow the testing procedures specified in §60.4213 of this subpart, as appropriate.

(d) Exhaust emissions from stationary CI ICE that are complying with the emission standards for pre-2007 model year engines in §60.4204(a), §60.4205(a), or §60.4205(c) must not exceed the NTE numerical requirements, rounded to the same number of decimal places as the applicable standard in §60.4204(a), §60.4205(a), or §60.4205(c), determined from the equation in paragraph (c) of this section.

Where:

STD = The standard specified for that pollutant in §60.4204(a), §60.4205(a), or §60.4205(c).

Alternatively, stationary CI ICE that are complying with the emission standards for pre-2007 model year engines in §60.4204(a), §60.4205(a), or §60.4205(c) may follow the testing procedures specified in §60.4213, as appropriate.

(e) Exhaust emissions from stationary CI ICE that are complying with the emission standards for new CI engines in 40 CFR part 1042 must not exceed the NTE standards for the same model year and maximum engine power as required in 40 CFR 1042.101(c).

§60.4214 What are my notification, reporting, and recordkeeping requirements if I am an owner or operator of a stationary CI internal combustion engine?

(a) Owners and operators of non-emergency stationary CI ICE that are greater than 2,237 KW (3,000 HP), or have a displacement of greater than or equal to 10 liters per cylinder, or are pre-2007 model year engines that are greater than 130 KW (175 HP) and not certified, must meet the requirements of paragraphs (a)(1) and (2) of this section.

(1) Submit an initial notification as required in §60.7(a)(1). The notification must include the information in paragraphs (a)(1)(i) through (v) of this section.

(i) Name and address of the owner or operator;

(ii) The address of the affected source;

(iii) Engine information including make, model, engine family, serial number, model year, maximum engine power, and engine displacement;

(iv) Emission control equipment; and

(v) Fuel used.

(2) Keep records of the information in paragraphs (a)(2)(i) through (iv) of this section.

(i) All notifications submitted to comply with this subpart and all documentation supporting any notification.

(ii) Maintenance conducted on the engine.

(iii) If the stationary CI internal combustion is a certified engine, documentation from the manufacturer that the engine is certified to meet the emission standards.

(iv) If the stationary CI internal combustion is not a certified engine, documentation that the engine meets the emission standards.

(b) If the stationary CI internal combustion engine is an emergency stationary internal combustion engine, the owner or operator is not required to submit an initial notification. Starting with the model years in table 5 to this subpart, if the emergency engine does not meet the standards applicable to non-emergency engines in the applicable model year, the owner or operator must keep records of the operation of the engine in emergency and non-emergency service that are recorded through the non-resettable hour meter. The owner must record the time of operation of the engine and the reason the engine was in operation during that time.

(c) If the stationary CI internal combustion engine is equipped with a diesel particulate filter, the owner or operator must keep records of any corrective action taken after the backpressure monitor has notified the owner or operator that the high backpressure limit of the engine is approached.

(d) If you own or operate an emergency stationary CI ICE with a maximum engine power more than 100 HP that operates or is contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §60.4211(f)(2)(ii) and (iii) or that operates for the purposes specified in §60.4211(f)(3)(i), you must submit an annual report according to the requirements in paragraphs (d)(1) through (3) of this section.

(1) The report must contain the following information:

(i) Company name and address where the engine is located.

(ii) Date of the report and beginning and ending dates of the reporting period.

(iii) Engine site rating and model year.

(iv) Latitude and longitude of the engine in decimal degrees reported to the fifth decimal place.

(v) Hours operated for the purposes specified in §60.4211(f)(2)(ii) and (iii), including the date, start time, and end time for engine operation for the purposes specified in §60.4211(f)(2)(ii) and (iii).

(vi) Number of hours the engine is contractually obligated to be available for the purposes specified in §60.4211(f)(2)(ii) and (iii).

(vii) Hours spent for operation for the purposes specified in §60.4211(f)(3)(i), including the date, start time, and end time for engine operation for the purposes specified in §60.4211(f)(3)(i). The report must also identify the entity that dispatched the engine and the situation that necessitated the dispatch of the engine.

(2) The first annual report must cover the calendar year 2015 and must be submitted no later than March 31, 2016. Subsequent annual reports for each calendar year must be submitted no later than March 31 of the following calendar year.

(3) The annual report must be submitted electronically using the subpart specific reporting form in the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) (*www.epa.gov/cdx*). However, if the reporting form specific to this subpart is not available in CEDRI at the time that the report is due, the written report must be submitted to the Administrator at the appropriate address listed in §60.4.

Attachment E

Plot Plan

Plotted by: sfore
y:\sw_sa_04\2014_0__\04-14-0001 camc regulatory compliance assistance\cadd\14-0001 plot plan.dwg

CHARLESTON AREA MEDICAL CENTER
MEMORIAL DIVISION -
CLASS II ADMINISTRATIVE UPDATE
CHARLESTON, KANAWHA COUNTY, WV

PLOT PLAN

FIGURE No.: E

PROJECT No.: 04-14-0001

TRIAD ENGINEERING, INC.
www.triadeng.com

CADD FILE:	14-0001 Plot Plan.dwg
PROJECT No.:	04-14-0001
DRAWN BY:	SJF
CHECKED BY:	SC
DATE:	4/21/2014
SCALE:	1" = 120'

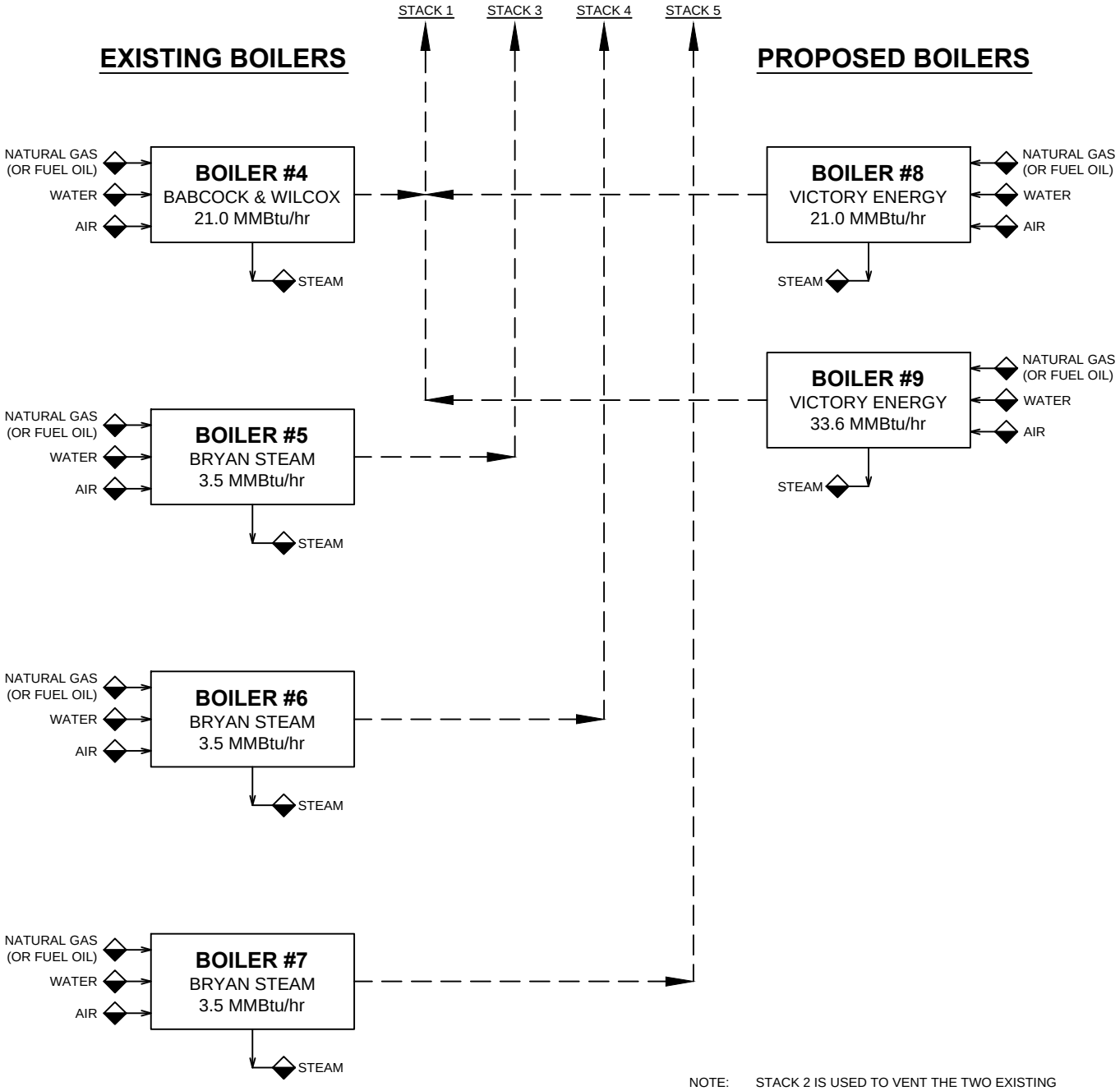
TRIAD ENGINEERING, INC.

10541 TEAYS VALLEY ROAD
SCOTT DEPOT, WV 25560
PH: 304.755.0721 FAX: 304.755.1880

OFFICE LOCATIONS
MARYLAND ○ PENNSYLVANIA ○ VIRGINIA ○ WEST VIRGINIA ○ OHIO

Attachment F

Process Flow Diagram



NOTE: STACK 2 IS USED TO VENT THE TWO EXISTING NATURAL GAS FIRED LAUNDRY BOILERS.

CADD FILE: 14-0001 Process Flow.dwg	CHARLESTON AREA MEDICAL CENTER MEMORIAL DIVISION - CLASS II ADMINISTRATIVE UPDATE CHARLESTON, KANAWHA COUNTY, WV **PROCESS FLOW DIAGRAM - BOILERS**	TRIAD ENGINEERING, INC. www.triadeng.com 10541 TEAYS VALLEY ROAD SCOTT DEPOT, WV 25560
DRAWN BY: XXX / CHECKED BY: XXX		
DATE: 4/21/2014 / SCALE: 1:1	PROJECT No.: 04-14-0001 FIGURE No.: F	

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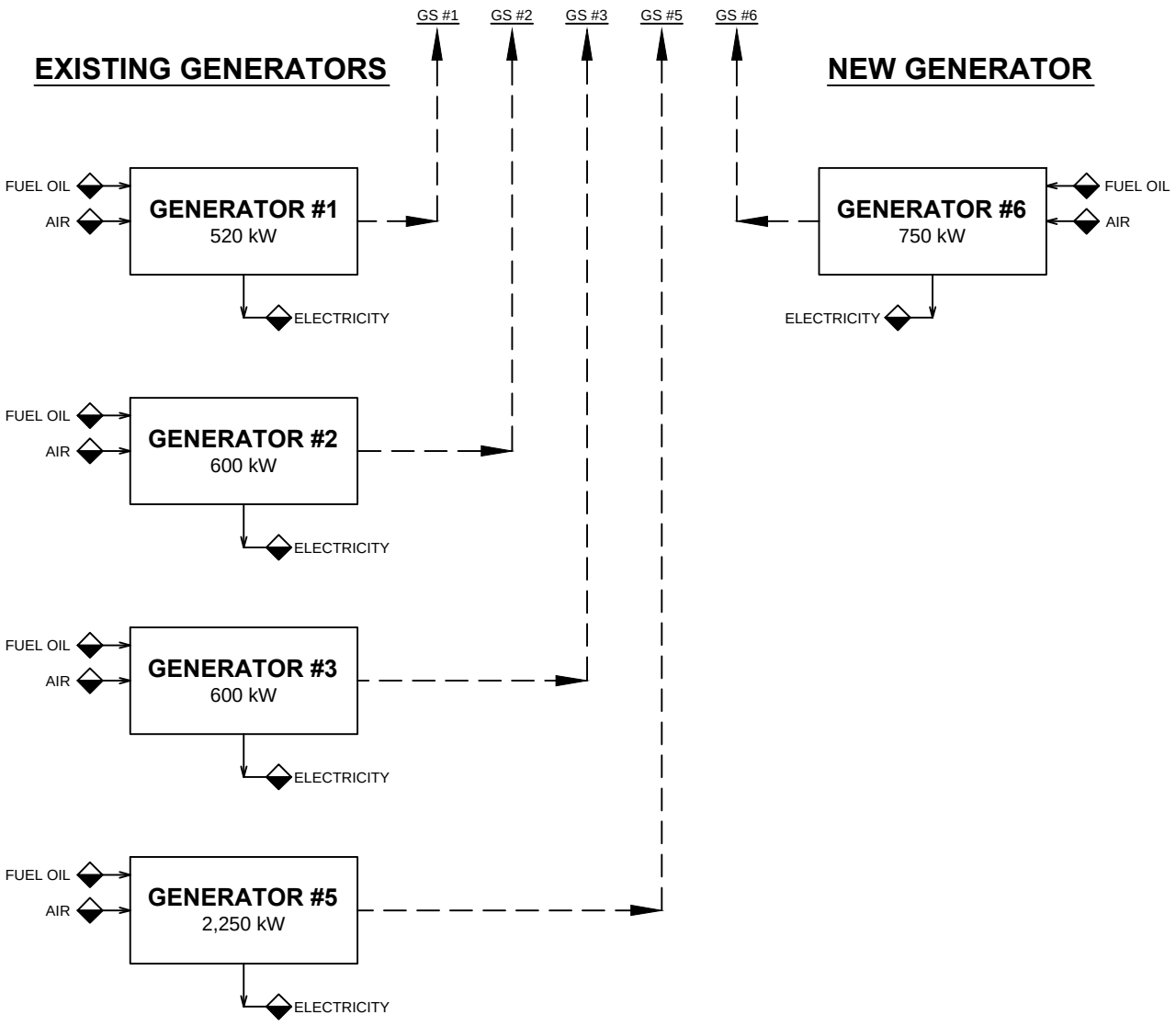

DEFINITIONS:
GS - GENERATOR STACK
kW - KILOWATT

NOTE: SEE EMISSION UNIT DATA SHEET (ATTACHMENT L) FOR ADDITIONAL INFORMATION ON THIS NEW GENERATOR.

CADD FILE: 14-0001 Process Flow.dwg	CHARLESTON AREA MEDICAL CENTER MEMORIAL DIVISION - CLASS II ADMINISTRATIVE UPDATE CHARLESTON, KANAWHA COUNTY, WV **PROCESS FLOW DIAGRAM - GENERATORS**	TRIAD ENGINEERING, INC. www.triadeng.com 10541 TEAYS VALLEY ROAD SCOTT DEPOT, WV 25560
DRAWN BY: XXX / CHECKED BY: XXX		
DATE: 4/21/2014 / SCALE: 1:1	PROJECT No.: 04-14-0001 FIGURE No.: F	

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Attachment G

Process Description

Attachment G

Process Description

This Class II Administrative Update outlines Charleston Area Medical Center – Memorial Division's need to continue the use of a CAT 750kW emergency generator (Generator #6) and install a Victory Energy 500 bhp boiler (Boiler #8) and a Victory Energy 800 bhp boiler (Boiler #9). The emergency generators are used to provide electricity throughout the facility in the event of a power failure. The new generator is vented through a new Generator Stack #6 and the new boilers will be vented through the existing Main Stack #1 (See Process Flow Diagram). The generator is powered by No. 2 Fuel Oil (diesel fuel), which is limited to 500 hours per year. The boilers are dual-fuel and will operate using natural gas along with No. 2 Fuel Oil as a backup. No. 2 Fuel Oil is limited to 500 hours per year. 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.

Attachment H

Material Safety Data Sheets

SAFETY DATA SHEET

SDS ID NO.: 0293MAR019
Revision Date: 05/14/2015

1. IDENTIFICATION

Product Name: Marathon Petroleum No. 2 Ultra Low Sulfur Diesel 15 ppm Sulfur Max with 2-5% Biodiesel

Synonym: Ultra Low Sulfur No. 2 Diesel with B2 Biodiesel; Ultra Low Sulfur No. 2 Diesel with B2 Biodiesel and Polar Plus; Ultra Low Sulfur No. 2 Diesel with B5 Biodiesel; Ultra Low Sulfur No. 2 Diesel with B5 Biodiesel and Polar Plus; No. 2 Diesel with Biodiesel B2 Blend 15 ppm Sulfur Max; No. 2 Diesel with Biodiesel B2 Blend 15 ppm Sulfur Max with Polar Plus; No. 2 Diesel with Biodiesel B5 Blend 15 ppm Sulfur Max; No. 2 Diesel with Biodiesel B5 Blend 15 ppm Sulfur Max with Polar Plus

Chemical Family: Complex Hydrocarbon Substance

Recommended Use: Fuel.
Use Restrictions: All others.

Supplier Name and Address:

MARATHON PETROLEUM COMPANY LP
539 South Main Street
Findlay, OH 45840

SDS information: 1-419-421-3070

Emergency Telephone: 1-877-627-5463

2. HAZARD IDENTIFICATION

Classification

OSHA Regulatory Status
This chemical is considered hazardous according to the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 3
Acute toxicity - Inhalation (Dusts/Mists)	Category 4
Skin corrosion/irritation	Category 2
Skin sensitization	Category 1
Carcinogenicity	Category 2
Specific target organ toxicity (single exposure)	Category 3
Specific target organ toxicity (repeated exposure)	Category 2
Aspiration toxicity	Category 1
Acute aquatic toxicity	Category 2
Chronic aquatic toxicity	Category 2

Hazards Not Otherwise Classified (HNOC)
Static accumulating flammable liquid

Label elements

EMERGENCY OVERVIEW

Danger

FLAMMABLE LIQUID AND VAPOR
May accumulate electrostatic charge and ignite or explode
May be fatal if swallowed and enters airways
Harmful if inhaled
Causes skin irritation
May cause an allergic skin reaction
May cause drowsiness or dizziness
Suspected of causing cancer
May cause damage to organs (thymus, liver, bone marrow) through prolonged or repeated exposure
Toxic to aquatic life with long lasting effects

Appearance Clear or Amber Liquid **Physical State** Liquid **Odor** Slight Hydrocarbon

Precautionary Statements - Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Keep away from heat/sparks/open flames/hot surfaces. — No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use only non-sparking tools
Use explosion-proof electrical/ventilating/lighting/equipment
Take precautionary measures against static discharge
Do not breathe mist/vapors/spray
Use only outdoors or in a well-ventilated area
Wear protective gloves/protective clothing/eye protection/face protection
Wash hands and any possibly exposed skin thoroughly after handling
Contaminated work clothing should not be allowed out of the workplace
Avoid release to the environment

Precautionary Statements - Response
IF exposed or concerned: Get medical attention
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
If skin irritation or rash occurs: Get medical attention
Wash contaminated clothing before reuse
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor if you feel unwell
IF SWALLOWED: Immediately call a POISON CENTER or doctor
Do NOT induce vomiting
In case of fire: Use water spray, fog or regular foam for extinction
Collect spillage

Precautionary Statements - Storage
Store in a well-ventilated place. Keep container tightly closed
Keep cool
Store locked up

Precautionary Statements - Disposal
Dispose of contents/container at an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

No. 2 Diesel with Biodiesel is a complex mixture of paraffins, olefins and aromatic hydrocarbons having hydrocarbon chain lengths predominantly in the range of eleven to twenty carbons. Contains a minor amount (2-5%) of Biodiesel that does not materially affect the health or safety of this product. May contain a trace amount of benzene (<0.01%). Contains a small amount of a lubricity additive (<0.1%) which is not considered hazardous at the concentration used. Contains a trace amount of sulfur (<0.0015%)

Composition Information:

Name	CAS Number	Weight %
No. 2 Diesel Fuel	68476-34-6	49-98
Kerosine, Petroleum	8008-20-6	0-49
Fuels, Diesel, C9-18-Alkane Branched and Linear	1159170-26-9	0-5
Biodiesel (Tallow derived)	61788-61-2	0-5
Biodiesel (Soybean derived)	67784-80-9	0-5
Biodiesel (Rapeseed derived)	73891-99-3	0-5
Biodiesel (Fatty Acid, Methyl Ester)	68937-84-8	0-5
Biodiesel (Canola derived)	129828-16-6	0-5
Alkanes, C10-C20 branched and linear	928771-01-1	0-5
Naphthalene	91-20-3	0.01-0.5

4. FIRST AID MEASURES

First Aid Measures

General advice — In case of accident or if you feel unwell, seek medical advice immediately (show directions for use or safety data sheet if possible).

Inhalation: — Remove to fresh air. If not breathing, institute rescue breathing. If breathing is difficult, ensure airway is clear, give oxygen and continue to monitor. If heart has stopped, immediately begin cardiopulmonary resuscitation (CPR). Keep affected person warm and at rest. GET IMMEDIATE MEDICAL ATTENTION.

Skin Contact: — Immediately wash exposed skin with plenty of soap and water while removing contaminated clothing and shoes. May be absorbed through the skin in harmful amounts. Get medical attention if irritation or rash occurs. Any injection injury from high pressure equipment should be evaluated immediately by a physician as potentially serious (See NOTES TO PHYSICIAN).

Place contaminated clothing in closed container until cleaned or discarded. If clothing is to be laundered, inform the person performing the operation of contaminant's hazardous properties. Destroy contaminated, non-chemical resistant footwear.

Eye Contact: — Flush immediately with large amounts of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Gently remove contacts while flushing. GET IMMEDIATE MEDICAL ATTENTION.

Ingestion: — Do not induce vomiting because of danger of aspirating liquid into lungs, causing serious damage and chemical pneumonitis. If spontaneous vomiting occurs, keep head below hips, or if patient is lying down, turn body and head to side to prevent aspiration and monitor for breathing difficulty. Never give anything by mouth to an unconscious person. Keep affected person warm and at rest. GET IMMEDIATE MEDICAL ATTENTION.

Most important signs and symptoms, both short-term and delayed with overexposure

Adverse Effects: Acute: Headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue. Delayed: Dry skin and possible irritation with repeated or prolonged exposure.

Indication of any immediate medical attention and special treatment needed

NOTES TO PHYSICIAN: SKIN: Leaks or accidents involving high-pressure equipment may inject a stream of material through the skin and initially produce an injury that may not appear serious. Only a small puncture wound may appear on the skin surface but, without proper treatment and depending on the nature, original pressure, volume, and location of the injected material, can compromise blood supply to an affected body part. Prompt surgical debridement of the wound may be necessary to prevent irreversible loss of function and/or the affected body part. High pressure injection injuries may be SERIOUS SURGICAL EMERGENCIES.

INGESTION: This material represents a significant aspiration and chemical pneumonitis hazard. Induction of emesis is not recommended. The metabolism of fatty acid methyl ester may release free methanol in the body that could induce metabolic acidosis with delayed effects. If a large amount of product is ingested, i.e. several ounces, consider the use of ethanol or fomepizole (Antizol) and hemodialysis. Consult standard literature or contact a poison control center for treatment details.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
For small fires, Class B fire extinguishing media such as CO2, dry chemical, foam (AFFF/ATC) or water spray can be used. For large fires, water spray, fog or foam (AFFF/ATC) can be used. Firefighting should be attempted only by those who are adequately trained and equipped with proper protective equipment.

Unsuitable extinguishing media
Do not use straight water streams to avoid spreading fire.

Specific hazards arising from the chemical
This product has been determined to be a flammable liquid per the OSHA Hazard Communication Standard and should be handled accordingly. May accumulate electrostatic charge and ignite or explode. Vapors may travel along the ground or be moved by ventilation and ignited by many sources such as pilot lights, sparks, electric motors, static discharge, or other ignition sources at locations distant from material handling. Flashback can occur along vapor trail. For additional fire related information, see NFPA 30 or the North American Emergency Response Guide 128.

Hazardous combustion products
Smoke, carbon monoxide, and other products of incomplete combustion.

Explosion data
Sensitivity to Mechanical Impact No.
Sensitivity to Static Discharge Yes.

Special protective equipment and precautions for firefighters
Firefighters should wear full protective clothing and positive-pressure self-contained breathing apparatus (SCBA) with a full face-piece, as appropriate. Avoid using straight water streams. Water spray and foam (AFFF/ATC) must be applied carefully to avoid frothing and from as far a distance as possible. Avoid excessive water spray application. Keep surrounding area cool with water spray from a distance and prevent further ignition of combustible material. Keep run-off water out of sewers and water sources.

NFPA: Health 1 Flammability 2 Instability 0 Special Hazards -

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Keep public away. Isolate and evacuate area. Shut off source if safe to do so. Eliminate all ignition sources. All contaminated surfaces will be slippery.

Protective Equipment: Use personal protection measures as recommended in Section 8.

Emergency Procedures:	Advise authorities and National Response Center (800-424-8802) if the product has entered a water course or sewer. Notify local health and pollution control agencies, if appropriate.
Environmental precautions:	Avoid release to the environment. Avoid subsoil penetration.
Methods and materials for containment:	Contain liquid with sand or soil.
Methods and materials for cleaning up:	Use suitable absorbent materials such as vermiculite, sand, or clay to clean up residual liquids. Recover and return free product to proper containers. When recovering free liquids ensure all equipment is grounded and bonded. Use only non-sparking tools.

7. HANDLING AND STORAGE

Safe Handling Precautions:

NEVER SIPHON THIS PRODUCT BY MOUTH. Use appropriate grounding and bonding practices. Static accumulating flammable liquid. Bonding and grounding may be insufficient to eliminate the hazard from static electricity. Do not expose to heat, open flames, strong oxidizers or other sources of ignition. No smoking. Avoid repeated and prolonged skin contact. Use personal protection measures as recommended in Section 8. Use only non-sparking tools. Do not cut, drill, grind or weld on empty containers since explosive residues may remain. Refer to applicable EPA, OSHA, NFPA and consistent state and local requirements.

Hydrocarbons are basically non-conductors of electricity and can become electrostatically charged during mixing, filtering, pumping at high flow rates or loading and transfer operations. If this charge reaches a sufficiently high level, sparks can form that may ignite the vapors of flammable liquids. Sudden release of hot organic chemical vapors or mists from process equipment operating under elevated temperature and pressure, or sudden ingress of air into vacuum equipment may result in ignition of vapors or mists without the presence of obvious ignition sources. Nozzle spouts must be kept in contact with the containers or tank during the entire filling operation.

Portable containers should never be filled while in or on a motor vehicle or marine craft. Containers should be placed on the ground. Static electric discharge can ignite fuel vapors when filling non-grounded containers or vehicles on trailers. The nozzle spout must be kept in contact with the container before and during the entire filling operation. Use only approved containers.

A buildup of static electricity can occur upon re-entry into a vehicle during fueling especially in cold or dry climate conditions. The charge is generated by the action of dissimilar fabrics (i.e., clothing and upholstery) rubbing across each other as a person enters/exits the vehicle. A flash fire can result from this discharge if sufficient flammable vapors are present. Therefore, do not get back in your vehicle while refueling.

Cellular phones and other electronic devices may have the potential to emit electrical charges (sparks). Sparks in potentially explosive atmospheres (including fueling areas such as gas stations) could cause an explosion if sufficient flammable vapors are present. Therefore, turn off cellular phones and other electronic devices when working in potentially explosive atmospheres or keep devices inside your vehicle during refueling.

High-pressure injection of any material through the skin is a serious medical emergency even though the small entrance wound at the injection site may not initially appear serious. These injection injuries can occur from high-pressure equipment such as paint spray or grease or guns, fuel injectors, or pinhole leaks in hoses or hydraulic lines and should all be considered serious. High pressure injection injuries may be SERIOUS SURGICAL EMERGENCIES (See First Aid Section 4).

Storage Conditions: Store in properly closed containers that are appropriately labeled and in a cool, well-ventilated area.

Incompatible materials Strong oxidizing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Name	ACGIH TLV	OSHA PELS:	OSHA - Vacated PELs	NIOSH IDLH
No. 2 Diesel Fuel 68476-34-6	100 mg/m³ TWA Skin - potential significant contribution to overall exposure by the cutaneous route	-	-	-
Kerosine, Petroleum 8008-20-6	200 mg/m³ TWA Skin - potential significant contribution to overall exposure by the cutaneous route	-	-	-
Fuels, Diesel, C9-18-Alkane Branched and Linear 1159170-26-9	-	-	-	-
Biodiesel (Tallow derived) 61788-61-2	-	-	-	-
Biodiesel (Soybean derived) 67784-80-9	-	-	-	-
Biodiesel (Rapeseed derived) 73891-99-3	-	-	-	-
Biodiesel (Fatty Acid, Methyl Ester) 68937-84-8	-	-	-	-
Biodiesel (Canola derived) 129828-16-6	-	-	-	-
Alkanes, C10-C20 branched and linear 928771-01-1	-	-	-	-
Naphthalene 91-20-3	10 ppm TWA Skin - potential significant contribution to overall exposure by the cutaneous route	TWA: 10 ppm TWA: 50 mg/m³	10 ppm TWA 50 mg/m³ TWA 15 ppm STEL 75 mg/m³ STEL	250 ppm

Notes: The manufacturer has voluntarily elected to provide exposure limits contained in OSHA's 1989 air contaminants standard in its SDSs, even though certain of those exposure limits were vacated in 1992.

Engineering measures: Local or general exhaust required in an enclosed area or with inadequate ventilation. Use mechanical ventilation equipment that is explosion-proof.

Personal protective equipment

Eye protection: Use goggles or face-shield if the potential for splashing exists.

Skin and body protection: Wear neoprene, nitrile or PVA gloves to prevent skin contact. Glove suitability is based on workplace conditions and usage. Contact the glove manufacturer for specific advice on glove selection and breakthrough times.

Respiratory protection: Use an approved organic vapor chemical cartridge or supplied air respirators when material produces vapors that exceed permissible exposure limits or excessive vapors are generated. Observe respirator assigned protection factors (APFs) criteria cited in federal OSHA 29 CFR 1910.134. Self-contained breathing apparatus should be used for fire fighting.

Hygiene measures: Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical State	Liquid
Appearance	Clear or Amber Liquid
Color	Clear or Amber
Odor	Slight Hydrocarbon
Odor Threshold	No available data.

Property	**Values (Method)**
Melting Point / Freezing Point	No available data.
Initial Boiling Point / Boiling Range	204-338 °C / 400-640 °F
Flash Point	54-88 °C / 130-190 °F
Evaporation Rate	No available data.
Flammability (solid, gas)	Not applicable.
Flammability Limit in Air (%)	
Upper Flammability Limit:	5.0
Lower Flammability Limit:	0.7
Vapor Pressure	1-10 mm Hg @ 20°C
Vapor Density	4-5
Specific Gravity / Relative Density	C.A. 0.8
Water Solubility	No available data.
Solubility in other solvents	Negligible
Partition Coefficient	No available data.
Decomposition temperature:	No available data.
pH:	Not applicable
Autoignition Temperature	336 °C / 637 °F
Kinematic Viscosity	1.9-3.4 @ 40°C
Dynamic Viscosity	No available data.
Explosive Properties	No available data.
Softening Point	No available data.
VOC Content (%)	10%
Density	6.76 lbs/gal
Bulk Density	Not applicable.

10. STABILITY AND REACTIVITY

Reactivity	The product is non-reactive under normal conditions.
Chemical stability	Stable under recommended storage conditions.
Possibility of hazardous reactions	None under normal processing.
Hazardous polymerization	Will not occur.
Conditions to avoid	Sources of heat or ignition.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	None known under normal conditions of use.

11. TOXICOLOGICAL INFORMATION

Potential short-term adverse effects from overexposures

Inhalation Harmful if inhaled. Inhalation of high vapor concentrations may cause irritation of the respiratory system. May cause drowsiness or dizziness.

Eye contact Causes mild eye irritation.

Skin contact Causes skin irritation. May cause sensitization by skin contact. May be absorbed through the skin in harmful amounts.

Ingestion May be fatal if swallowed or vomited and enters airways. May cause irritation of the mouth, throat and gastrointestinal tract.

Acute Toxicological data

Name	Oral LD50	Dermal LD50	Inhalation LC50
No. 2 Diesel Fuel 68476-34-6	> 5000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	>1 - <5 mg/L (Rat) 4 h
Kerosine, Petroleum 8008-20-6	> 5000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 5.28 mg/L (Rat) 4 h
Fuels, Diesel, C9-18-Alkane Branched and Linear 1159170-26-9	-	-	>1 - <5 mg/l (Rat) 4 h
Biodiesel (Tallow derived) 61788-61-2	-	-	-
Biodiesel (Soybean derived) 67784-80-9	> 5000 mg/kg (Rat)	> 5000 mg/kg (Rabbit)	-
Biodiesel (Rapeseed derived) 73891-99-3	-	-	-
Biodiesel (Fatty Acid, Methyl Ester) 68937-84-8	> 2000 mg/kg (Rat)	-	-
Biodiesel (Canola derived) 129828-16-6	-	-	-
Alkanes, C10-C20 branched and linear 928771-01-1	-	-	>1 - <5 mg/l (Rat) 4 h
Naphthalene 91-20-3	490 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 340 mg/m³ (Rat) 1 h

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Altered mental state, drowsiness, peripheral motor neuropathy, irreversible brain damage (so-called Petrol Sniffer's Encephalopathy), delirium, seizures, and sudden death have been reported from repeated overexposure to some hydrocarbon solvents, naphthas, and gasoline.

MIDDLE DISTILLATES, PETROLEUM: Long-term repeated (lifetime) skin exposure to similar materials has been reported to result in an increase in skin tumors in laboratory rodents. The relevance of these findings to humans is not clear at this time.

MIDDLE DISTILLATES WITH CRACKED STOCKS: Light cracked distillates have been shown to be carcinogenic in animal tests and have tested positive with in vitro genotoxicity tests. Repeated dermal exposures to high concentrations in test animals resulted in reduced litter size and litter weight, and increased fetal resorptions at maternally toxic doses. Dermal exposure to high concentrations resulted in severe skin irritation with weight loss and some mortality. Inhalation exposure to high concentrations resulted in respiratory tract irritation, lung changes/infiltration/accumulation, and reduction in lung function.

ISOPARAFFINS: Studies in laboratory animals have shown that long-term exposure to similar materials (isoparaffins) can cause kidney damage and kidney cancer in male laboratory rats. However, in-depth research indicates that these findings are unique to the male rat, and that these effects are not relevant to humans.

BIODIESEL (SOYBEAN DERIVED): Dermal sensitization study (Guinea Pigs) repeat insult patch procedure with induction and challenge patches indicated a positive sensitization response.

NAPHTHALENE: Severe jaundice, neurotoxicity (kernicterus) and fatalities have been reported in young children and infants as a result of hemolytic anemia from overexposure to naphthalene. Persons with glucose 6-phosphate dehydrogenase (G6PD) deficiency are more prone to the hemolytic effects of naphthalene. Adverse effects on the kidney have been reported in persons overexposed to naphthalene but these effects are believed to be a consequence of hemolytic anemia, and not a direct effect. Hemolytic anemia has been observed in laboratory animals exposed to naphthalene. Laboratory rodents exposed to naphthalene vapor for 2 years (lifetime studies) developed non-neoplastic and neoplastic tumors and inflammatory lesions of the nasal and respiratory tract. Cataracts and other adverse effects on the eye have been observed in laboratory animals exposed to high levels of naphthalene. Findings from a large number of bacterial and mammalian cell mutation assays have been negative. A few studies have shown chromosomal effects (elevated levels of Sister Chromatid Exchange or chromosomal aberrations) in vitro. Naphthalene has been classified as Possibly Carcinogenic to Humans (2B) by IARC, based on findings from studies in laboratory animals.

DIESEL EXHAUST: The combustion of diesel fuels produces gases including carbon monoxide, carbon dioxide, oxides of nitrogen and/or sulfur, and hydrocarbons that can be irritating and hazardous with overexposure. Long-term occupational overexposure to diesel exhaust and diesel exhaust particulate matter has been associated with an increased risk of respiratory disease, including lung cancer, and is characterized as a "known human carcinogen" by the International Agency for Research on Cancer (IARC), as "a reasonably anticipated human carcinogen" by the National Toxicology Program, and as "likely to be carcinogenic to humans" by the EPA, based upon animal and occupational exposure studies. However, uncertainty exists with these classifications because of deficiencies in the supporting occupational exposure/epidemiology studies, including reliable exposure estimates. Lifetime animal inhalation studies with pulmonary overloading exposure concentrations of diesel exhaust emissions have produced tumors and other adverse health effects. However, in more recent long-term animal inhalation studies of diesel exhaust emissions, no increase in tumor incidence and in fact a substantial reduction in adverse health effects along with significant reductions in the levels of hazardous material emissions were observed and are associated with fuel composition alterations coupled with new technology diesel engines.

Adverse effects related to the physical, chemical and toxicological characteristics

Signs & Symptoms Nausea, vomiting, signs of nervous system depression: headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue.

Sensitization May cause sensitization by skin contact. Not expected to be a respiratory sensitizer.

Mutagenic effects None known.

Carcinogenicity Cancer designations are listed in the table below.

Name	ACGIH (Class)	IARC (Class)	NTP	OSHA
No. 2 Diesel Fuel 68476-34-6	Confirmed animal carcinogen (A3)	Not Classifiable (3)	Not Listed	Not Listed
Kerosine, Petroleum 8008-20-6	Confirmed animal carcinogen (A3)	Not Classifiable (3)	Not Listed	Not Listed
Fuels, Diesel, C9-18-Alkane Branched and Linear 1159170-26-9	Not Listed	Not Listed	Not Listed	Not Listed
Biodiesel (Tallow derived) 61788-61-2	Not Listed	Not Listed	Not Listed	Not Listed
Biodiesel (Soybean derived) 67784-80-9	Not Listed	Not Listed	Not Listed	Not Listed
Biodiesel (Rapeseed derived) 73891-99-3	Not Listed	Not Listed	Not Listed	Not Listed
Biodiesel (Fatty Acid, Methyl Ester) 68937-84-8	Not Listed	Not Listed	Not Listed	Not Listed
Biodiesel (Canola derived) 129828-16-6	Not Listed	Not Listed	Not Listed	Not Listed
Alkanes, C10-C20 branched and linear 928771-01-1	Not Listed	Not Listed	Not Listed	Not Listed
Naphthalene 91-20-3	Confirmed animal carcinogen (A3)	Possible human carcinogen (2B)	Reasonably anticipated to be a human carcinogen	Not Listed

Reproductive toxicity None known.

Specific Target Organ Toxicity (STOT) - single exposure Central nervous system.

Specific Target Organ Toxicity (STOT) - repeated exposure Thymus. Liver. Bone marrow.

Aspiration hazard May be fatal if swallowed or vomited and enters airways.

12. ECOLOGICAL INFORMATION

Ecotoxicity This product should be considered toxic to aquatic organisms, with the potential to cause long lasting adverse effects in the aquatic environment.

Name	Algae/aquatic plants	Fish	Toxicity to Microorganisms	Crustacea
No. 2 Diesel Fuel 68476-34-6	-	96-hr LC50 = 35 mg/l Fathead minnow (flow-through)	-	48-hr EL50 = 6.4 mg/l Daphnia magna
Kerosine, Petroleum 8008-20-6	72-hr EL50 = 5.0-11 mg/l Algae	96-hr LL50 = 18-25 mg/l Fish	-	48-hr EL50 = 1.4-21 mg/l Invertebrates
Fuels, Diesel, C9-18-Alkane Branched and Linear 1159170-26-9	-	-	-	-

Biodiesel (Tallow derived) 61788-61-2	-	-	-	-
Biodiesel (Soybean derived) 67784-80-9	-	-	-	-
Biodiesel (Rapeseed derived) 73891-99-3	-	-	-	-
Biodiesel (Fatty Acid, Methyl Ester) 68937-84-8	-	96-hr LC50 = 550 mg/l Zebrafish (semi-static)	-	24-hr LC50 = 4.65 mg/l Daphnia magna
Biodiesel (Canola derived) 129828-16-6	-	-	-	-
Alkanes, C10-C20 branched and linear 928771-01-1	-	-	-	-
Naphthalene 91-20-3	-	96-hr LC50 = 0.91-2.82 mg/l Rainbow trout (static) 96-hr LC50 = 1.99 mg/l Fathead minnow (static)	-	48-hr LC50 = 1.6 mg/l Daphnia magna

Persistence and degradability Expected to be inherently biodegradable.

Bioaccummulation Has the potential to bioaccumulate.

Mobility in soil May partition into air, soil and water.

Other adverse effects No information available.

13. DISPOSAL CONSIDERATIONS

Description of Waste Residues
This material may be a flammable liquid waste.

Safe Handling of Wastes
Handle in accordance with applicable local, state, and federal regulations. Use personal protection measures as required. Use appropriate grounding and bonding practices. Use only non-sparking tools. Do not expose to heat, open flames, strong oxidizers or other sources of ignition. No smoking.

Disposal of Wastes / Methods of Disposal
The user is responsible for determining if any discarded material is a hazardous waste (40 CFR 262.11). Dispose of in accordance with federal, state and local regulations.

Methods of Contaminated Packaging Disposal
Empty containers should be completely drained and then discarded or recycled, if possible. Do not cut, drill, grind or weld on empty containers since explosive residues may be present. Dispose of in accordance with federal, state and local regulations.

14. TRANSPORT INFORMATION

DOT (49 CFR 172.101):

UN Proper shipping name:	Fuel Oil, No. 2
UN/Identification No:	NA 1993
Transport Hazard Class(es):	3
Packing group:	III

TDG (Canada):

UN Proper shipping name:	Fuel Oil, No. 2
UN/Identification No:	NA 1993
Transport Hazard Class(es):	3
Packing group:	III

15. REGULATORY INFORMATION

US Federal Regulatory Information:

US TSCA Chemical Inventory Section 8(b): This product and/or its components are listed on the TSCA Chemical Inventory.

EPA Superfund Amendment & Reauthorization Act (SARA):

SARA Section 302: This product does not contain any component(s) included on EPA's Extremely Hazardous Substance (EHS) List.

Name	CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs
No. 2 Diesel Fuel	NA
Kerosine, Petroleum	NA
Fuels, Diesel, C9-18-Alkane Branched and Linear	NA
Biodiesel (Tallow derived)	NA
Biodiesel (Soybean derived)	NA
Biodiesel (Rapeseed derived)	NA
Biodiesel (Fatty Acid, Methyl Ester)	NA
Biodiesel (Canola derived)	NA
Alkanes, C10-C20 branched and linear	NA
Naphthalene	NA

SARA Section 304: This product may contain component(s) identified either as an EHS or a CERCLA Hazardous substance which in case of a spill or release may be subject to SARA reporting requirements:

Name	CERCLA/SARA - Hazardous Substances and their Reportable Quantities
No. 2 Diesel Fuel	NA
Kerosine, Petroleum	NA
Fuels, Diesel, C9-18-Alkane Branched and Linear	NA
Biodiesel (Tallow derived)	NA
Biodiesel (Soybean derived)	NA
Biodiesel (Rapeseed derived)	NA
Biodiesel (Fatty Acid, Methyl Ester)	NA
Biodiesel (Canola derived)	NA
Alkanes, C10-C20 branched and linear	NA
Naphthalene	100 lb final RQ 45.4 kg final RQ

SARA: The following EPA hazard categories apply to this product:

Acute Health Hazard
Fire Hazard
Chronic Health Hazard

SARA Section 313: This product may contain component(s), which if in exceedance of the de minimus threshold, may be subject to the reporting requirements of SARA Title III Section 313 Toxic Release Reporting (Form R).

Name	CERCLA/SARA 313 Emission reporting:
No. 2 Diesel Fuel	None
Kerosine, Petroleum	None
Fuels, Diesel, C9-18-Alkane Branched and Linear	None
Biodiesel (Tallow derived)	None
Biodiesel (Soybean derived)	None
Biodiesel (Rapeseed derived)	None

Biodiesel (Fatty Acid, Methyl Ester)	None
Biodiesel (Canola derived)	None
Alkanes, C10-C20 branched and linear	None
Naphthalene	0.1 % de minimis concentration

State and Community Right-To-Know Regulations:
The following component(s) of this material are identified on the regulatory lists below:

No. 2 Diesel Fuel

Louisiana Right-To-Know:	Not Listed.
California Proposition 65:	Not Listed.
New Jersey Right-To-Know:	SN 2444
Pennsylvania Right-To-Know:	Not Listed.
Massachusetts Right-To Know:	Not Listed.
Florida Substance List:	Not Listed.
Rhode Island Right-To-Know:	Not Listed.
Michigan Critical Materials Register List:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed.
California - Regulated Carcinogens:	Not Listed.
Pennsylvania RTK - Special Hazardous Substances:	Not Listed.
New Jersey - Special Hazardous Substances:	Not Listed.
New Jersey - Environmental Hazardous Substances List:	SN 2444 TPQ: 10000 lb (Under N.J.A.C. 7:1G, environmental hazardous substances in mixtures such as gasoline or new and used petroleum oil may be reported under these categories)
Illinois - Toxic Air Contaminants	Not Listed.
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed.

Kerosine, Petroleum

Louisiana Right-To-Know:	Not Listed.
California Proposition 65:	Not Listed.
New Jersey Right-To-Know:	SN 1091
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed.
Rhode Island Right-To-Know:	Not Listed.
Michigan Critical Materials Register List:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed.
California - Regulated Carcinogens:	Not Listed.
Pennsylvania RTK - Special Hazardous Substances:	Not Listed.
New Jersey - Special Hazardous Substances:	Not Listed.
New Jersey - Environmental Hazardous Substances List:	SN 1091 TPQ: 10000 lb (Under N.J.A.C. 7:1G, environmental hazardous substances in mixtures such as gasoline or new and used petroleum oil may be reported under these categories)
Illinois - Toxic Air Contaminants	Not Listed.
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed.

Fuels, Diesel, C9-18-Alkane Branched and Linear

Louisiana Right-To-Know:	Not Listed.
California Proposition 65:	Not Listed.
New Jersey Right-To-Know:	Not Listed.
Pennsylvania Right-To-Know:	Not Listed.
Massachusetts Right-To Know:	Not Listed.
Florida Substance List:	Not Listed.
Rhode Island Right-To-Know:	Not Listed.
Michigan Critical Materials Register List:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed.
California - Regulated Carcinogens:	Not Listed.

Pennsylvania RTK - Special Hazardous Substances:	Not Listed.
New Jersey - Special Hazardous Substances:	Not Listed.
New Jersey - Environmental Hazardous Substances List:	Not Listed.
Illinois - Toxic Air Contaminants	Not Listed.
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed.
Biodiesel (Tallow derived)	
Louisiana Right-To-Know:	Not Listed.
California Proposition 65:	Not Listed.
New Jersey Right-To-Know:	Not Listed.
Pennsylvania Right-To-Know:	Not Listed.
Massachusetts Right-To Know:	Not Listed.
Florida Substance List:	Not Listed.
Rhode Island Right-To-Know:	Not Listed.
Michigan Critical Materials Register List:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed.
California - Regulated Carcinogens:	Not Listed.
Pennsylvania RTK - Special Hazardous Substances:	Not Listed.
New Jersey - Special Hazardous Substances:	Not Listed.
New Jersey - Environmental Hazardous Substances List:	Not Listed.
Illinois - Toxic Air Contaminants	Not Listed.
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed.
Biodiesel (Soybean derived)	
Louisiana Right-To-Know:	Not Listed.
California Proposition 65:	Not Listed.
New Jersey Right-To-Know:	Not Listed.
Pennsylvania Right-To-Know:	Not Listed.
Massachusetts Right-To Know:	Not Listed.
Florida Substance List:	Not Listed.
Rhode Island Right-To-Know:	Not Listed.
Michigan Critical Materials Register List:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed.
California - Regulated Carcinogens:	Not Listed.
Pennsylvania RTK - Special Hazardous Substances:	Not Listed.
New Jersey - Special Hazardous Substances:	Not Listed.
New Jersey - Environmental Hazardous Substances List:	Not Listed.
Illinois - Toxic Air Contaminants	Not Listed.
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed.
Biodiesel (Rapeseed derived)	
Louisiana Right-To-Know:	Not Listed.
California Proposition 65:	Not Listed.
New Jersey Right-To-Know:	Not Listed.
Pennsylvania Right-To-Know:	Not Listed.
Massachusetts Right-To Know:	Not Listed.
Florida Substance List:	Not Listed.
Rhode Island Right-To-Know:	Not Listed.
Michigan Critical Materials Register List:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed.
California - Regulated Carcinogens:	Not Listed.
Pennsylvania RTK - Special Hazardous Substances:	Not Listed.
New Jersey - Special Hazardous Substances:	Not Listed.

New Jersey - Environmental Hazardous Substances List:	Not Listed.
Illinois - Toxic Air Contaminants	Not Listed.
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed.
Biodiesel (Fatty Acid, Methyl Ester)	
Louisiana Right-To-Know:	Not Listed.
California Proposition 65:	Not Listed.
New Jersey Right-To-Know:	Not Listed.
Pennsylvania Right-To-Know:	Not Listed.
Massachusetts Right-To Know:	Not Listed.
Florida Substance List:	Not Listed.
Rhode Island Right-To-Know:	Not Listed.
Michigan Critical Materials Register List:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed.
California - Regulated Carcinogens:	Not Listed.
Pennsylvania RTK - Special Hazardous Substances:	Not Listed.
New Jersey - Special Hazardous Substances:	Not Listed.
New Jersey - Environmental Hazardous Substances List:	Not Listed.
Illinois - Toxic Air Contaminants	Not Listed.
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed.
Biodiesel (Canola derived)	
Louisiana Right-To-Know:	Not Listed.
California Proposition 65:	Not Listed.
New Jersey Right-To-Know:	Not Listed.
Pennsylvania Right-To-Know:	Not Listed.
Massachusetts Right-To Know:	Not Listed.
Florida Substance List:	Not Listed.
Rhode Island Right-To-Know:	Not Listed.
Michigan Critical Materials Register List:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed.
California - Regulated Carcinogens:	Not Listed.
Pennsylvania RTK - Special Hazardous Substances:	Not Listed.
New Jersey - Special Hazardous Substances:	Not Listed.
New Jersey - Environmental Hazardous Substances List:	Not Listed.
Illinois - Toxic Air Contaminants	Not Listed.
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed.
Alkanes, C10-C20 branched and linear	
Louisiana Right-To-Know:	Not Listed.
California Proposition 65:	Not Listed.
New Jersey Right-To-Know:	Not Listed.
Pennsylvania Right-To-Know:	Not Listed.
Massachusetts Right-To Know:	Not Listed.
Florida Substance List:	Not Listed.
Rhode Island Right-To-Know:	Not Listed.
Michigan Critical Materials Register List:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed.
California - Regulated Carcinogens:	Not Listed.
Pennsylvania RTK - Special Hazardous Substances:	Not Listed.
New Jersey - Special Hazardous Substances:	Not Listed.
New Jersey - Environmental Hazardous Substances List:	Not Listed.
Illinois - Toxic Air Contaminants	Not Listed.

New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed.
Naphthalene	
Louisiana Right-To-Know:	Not Listed.
California Proposition 65:	Carcinogen, initial date 4/19/02
New Jersey Right-To-Know:	SN 1322 SN 3758
Pennsylvania Right-To-Know:	Environmental hazard Present (particulate)
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed.
Rhode Island Right-To-Know:	Toxic; Flammable
Michigan Critical Materials Register List:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed.
California - Regulated Carcinogens:	Not Listed.
Pennsylvania RTK - Special Hazardous Substances:	Not Listed.
New Jersey - Special Hazardous Substances:	Carcinogen
New Jersey - Environmental Hazardous Substances List:	SN 1322 TPQ: 500 lb (Reportable at the de minimis quantity of >0.1%)
Illinois - Toxic Air Contaminants	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	100 lb RQ (air); 1 lb RQ (land/water)

Canada DSL/NDSL Inventory: This product contains the following component(s) that are listed on the Non-Domestic Substance List (NDSL): CAS# 1159170-26-9

Canadian Regulatory Information: "This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the (M)SDS contains all the information required by the Controlled Products Regulations."

Name	Canada - WHMIS: Classifications of Substances:	Canada - WHMIS: Ingredient Disclosure:
No. 2 Diesel Fuel	B3,D2A,D2B	0.1%
Kerosine, Petroleum	B3,D2B	1%
Fuels, Diesel, C9-18-Alkane Branched and Linear	B3,D2A,D2B	0.1%
Biodiesel (Tallow derived)	Uncontrolled product according to WHMIS classification criteria	-
Biodiesel (Soybean derived)	D2B	1%
Biodiesel (Rapeseed derived)	Uncontrolled product according to WHMIS classification criteria	-
Biodiesel (Fatty Acid, Methyl Ester)	Uncontrolled product according to WHMIS classification criteria	-
Biodiesel (Canola derived)	Uncontrolled product according to WHMIS classification criteria	-
Alkanes, C10-C20 branched and linear	B3,D2A,D2B	0.1%
Naphthalene	B4,D2A	0.1%

NOTE: Not Applicable.

16. OTHER INFORMATION

Prepared By Toxicology and Product Safety
Revision Date: 05/14/2015

Revision Note:

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is intended as guidance for safe handling, use, processing, storage, transportation, accidental release, clean-up and disposal and is not considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Attachment I

Emission Units Table

Attachment I

Emission Units Table

(includes all emission units and air pollution control devices that will be part of this permit application review, regardless of permitting status)

Emission Unit ID[1]	Emission Point ID[2]	Emission Unit Description	Year Installed/ Modified	Design Capacity	Type[3] and Date of Change	Control Device[4]
Generator #6	GS #6	Caterpillar 750 kW Emergency Generator	2014	750 kW	Existing	NA
Boiler #8	1	Victory Energy 500 HP Boiler	2015	21.0 MMBtu	New	NA
Boiler #9	1	Victory Energy 800 HP Boiler	2015	33.6 MMBtu	New	NA
Boiler #4	1	Natural Gas/No. 2 Fuel Oil Fired Boiler	1994	21.0 MMBtu	Existing	NA
Laundry #1	2	Natural Gas Fired Boiler	2005	12.6 MMBtu	Existing	NA
Laundry #2	2	Natural Gas Fired Boiler	2005	12.6 MMBtu	Existing	NA
Boiler #5	5	Natural Gas/No. 2 Fuel Oil Fired Boiler	2008	3.5 MMBtu	Existing	NA
Boiler #6	4	Natural Gas/No. 2 Fuel Oil Fired Boiler	2008	3.5 MMBtu	Existing	NA
Boiler #7	3	Natural Gas/No. 2 Fuel Oil Fired Boiler	2008	3.5 MMBtu	Existing	NA
Generator #1	GS #1	Diesel Emergency Generator		520 kW	Existing	NA
Generator #2	GS #2	Diesel Emergency Generator		600 kW	Existing	NA
Generator #3	GS #3	Diesel Emergency Generator		600 kW	Existing	NA
Generator #5	GS #5	Diesel Emergency Generator	2009	2,250 kW	Existing	NA
Fuel Oil Tank #1	NA	Fuel Oil Storage Tank		6,136 gallons	Existing	NA
Fuel Oil Tank #2	NA	Fuel Oil Storage Tank		6,236 gallons	Existing	NA
Fuel Oil Tank #3	NA	Fuel Oil Storage Tank	2008	8,000 gallons	Existing	NA
Ethylene Oxide #1	EOSS	Ethylene Oxide Sterilizer			Existing	NA
Ethylene Oxide #2	EOSS	Ethylene Oxide Sterilizer			Existing	NA
Ethylene Oxide #3	EOSS	Ethylene Oxide Sterilizer			Existing	NA

[1] For Emission Units (or Sources) use the following numbering system:1S, 2S, 3S,... or other appropriate designation.
[2] For Emission Points use the following numbering system:1E, 2E, 3E, ... or other appropriate designation.
[3] New, modification, removal
[4] For Control Devices use the following numbering system: 1C, 2C, 3C,... or other appropriate designation.

Attachment J

Emission Points Data Summary Sheet

Attachment J
EMISSION POINTS DATA SUMMARY SHEET

Table 1: Emissions Data

Emission Point ID No. *(Must match Emission Units Table & Plot Plan)*	Emission Point Type[1]	Emission Unit Vented Through This Point *(Must match Emission Units Table & Plot Plan)*		Air Pollution Control Device *(Must match Emission Units Table & Plot Plan)*		Vent Time for Emission Unit *(chemical processes only)*		All Regulated Pollutants - Chemical Name/CAS[3] *(Speciate VOCs & HAPS)*	Maximum Potential Uncontrolled Emissions [4]		Maximum Potential Controlled Emissions [5]		Emission Form or Phase *(At exit conditions, Solid, Liquid or Gas/Vapor)*	Est. Method Used [6]	Emission Concentration [7] (ppmv or mg/m^4)
		ID No.	Source	ID No.	Device Type	Short Term[2]	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr			
GS #6	Vertical	GS #6	GS #6	N/A	N/A	C	500	CO NOx PM_{10} SO_2 VOC CO_2 CH_4 N_2O CO_2e	4.13 18.00 0.53 9.10E-03 0.48 2.35E+01 7.44E-02 5.98E-02 2.37E+01	1.03 4.50 0.13 2.28E-03 0.12 1.03E+02 3.26E-01 2.62E-01 1.04E+02	NA	NA	Gas Gas Solid Gas Gas Gas Gas Gas Gas	AP-42	NA
Boiler #8	Vertical	1	Boiler #8	N/A	N/A	C	8760	CO NOx PM_{10} SO_2 VOC CO_2 CH_4 N_2O CO_2e	2.51 5.10 0.66 0.04 0.17 2.56E+03 5.21E+00 1.84E+00 2.58E+03	7.48 9.42 0.78 0.06 0.49 1.12E+04 2.28E+01 8.08E+00 1.13E+04	NA	NA	Gas Gas Solid Gas Gas Gas Gas Gas Gas	AP-42	NA
Boiler #9	Vertical	1	Boiler #9	N/A	N/A	C	8760	CO NOx PM_{10} SO_2 VOC CO_2 CH_4 N_2O CO_2e	4.02 8.16 1.05 0.07 0.26 4.11E+03 8.31E+00 2.95E+00 4.13E+03	11.96 15.08 1.25 0.09 0.78 1.80E+04 3.64E+01 1.29E+01 1.81+04	NA	NA	Gas Gas Solid Gas Gas Gas Gas Gas Gas	AP-42	NA

The EMISSION POINTS DATA SUMMARY SHEET provides a summation of emissions by emission unit. Note that uncaptured process emission unit emissions are not typically considered to be fugitive and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET. Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions). Please complete the FUGITIVE EMISSIONS DATA SUMMARY SHEET for fugitive emission activities.

[1] Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.

[2] Indicate by "C" if venting is continuous. Otherwise, specify the average short-term venting rate with units, for intermittent venting (ie., 15 min/hr). Indicate as many rates as needed to clarify frequency of venting (e.g., 5 min/day, 2 days/wk).

[3] List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. **LIST** Acids, CO, CS_2, VOCs, H_2S, Inorganics, Lead, Organics, O_3, NO, NO_2, SO_2, SO_3, all applicable Greenhouse Gases (including CO_2 and methane), etc. **DO NOT LIST** H_2, H_2O, N_2, O_2, and Noble Gases.

[4] Give maximum potential emission rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[5] Give maximum potential emission rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[6] Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

[7] Provide for all pollutant emissions. Typically, the units of parts per million by volume (ppmv) are used. If the emission is a mineral acid (sulfuric, nitric, hydrochloric or phosphoric) use units of milligram per dry cubic meter (mg/m^3) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is SO_2, use units of ppmv (See 45CSR10).

Attachment J
EMISSION POINTS DATA SUMMARY SHEET

Table 2: Release Parameter Data								
Emission Point ID No. *(Must match Emission Units Table)*	Inner Diameter (ft.)	Exit Gas			Emission Point Elevation (ft)		UTM Coordinates (km)	
		Temp. (^{o}F)	Volumetric Flow [1] (acfm) *at operating conditions*	Velocity (fps)	Ground Level *(Height above mean sea level)*	Stack Height [2] *(Release height of emissions above ground level)*	Northing	Easting
GS #6	0.67	948.7	5,611.5	40.2	600	NAv	4242.43	447.12
1 – Boiler #8	7.2	500	4,689	NAv	600	114	4242.43	447.12
1 – Boiler #9	7.2	500	7,501	NAv	600	114	4242.43	447.12

[1] Give at operating conditions. Include inerts.
[2] Release height of emissions above ground level.

Attachment K

Fugitive Emissions Data Summary Sheet

Attachment K

FUGITIVE EMISSIONS DATA SUMMARY SHEET

The FUGITIVE EMISSIONS SUMMARY SHEET provides a summation of fugitive emissions. Fugitive emissions are those emissions which could not reasonably pass through a stack, chimney, vent or other functionally equivalent opening. Note that uncaptured process emissions are not typically considered to be fugitive, and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET.

Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions).

APPLICATION FORMS CHECKLIST - FUGITIVE EMISSIONS
1.) Will there be haul road activities? ☐ Yes ☒ No ☐ If YES, then complete the HAUL ROAD EMISSIONS UNIT DATA SHEET.
2.) Will there be Storage Piles? ☐ Yes ☒ No ☐ If YES, complete Table 1 of the NONMETALLIC MINERALS PROCESSING EMISSIONS UNIT DATA SHEET.
3.) Will there be Liquid Loading/Unloading Operations? ☐ Yes ☒ No ☐ If YES, complete the BULK LIQUID TRANSFER OPERATIONS EMISSIONS UNIT DATA SHEET.
4.) Will there be emissions of air pollutants from Wastewater Treatment Evaporation? ☐ Yes ☒ No ☐ If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET.
5.) Will there be Equipment Leaks (e.g. leaks from pumps, compressors, in-line process valves, pressure relief devices, open-ended valves, sampling connections, flanges, agitators, cooling towers, etc.)? ☐ Yes ☒ No ☐ If YES, complete the LEAK SOURCE DATA SHEET section of the CHEMICAL PROCESSES EMISSIONS UNIT DATA SHEET.
6.) Will there be General Clean-up VOC Operations? ☐ Yes ☒ No ☐ If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET.
7.) Will there be any other activities that generate fugitive emissions? ☐ Yes ☒ No ☐ If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET or the most appropriate form.
If you answered "NO" to all of the items above, it is not necessary to complete the following table, "Fugitive Emissions Summary."

FUGITIVE EMISSIONS SUMMARY	All Regulated Pollutants - Chemical Name/CAS [1]	Maximum Potential Uncontrolled Emissions [2]		Maximum Potential Controlled Emissions [3]		Est. Method Used [4]
		lb/hr	ton/yr	lb/hr	ton/yr	
Haul Road/Road Dust Emissions Paved Haul Roads						
Unpaved Haul Roads						
Storage Pile Emissions						
Loading/Unloading Operations						
Wastewater Treatment Evaporation & Operations						
Equipment Leaks		Does not apply		Does not apply		
General Clean-up VOC Emissions						
Other						

[1] List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. LIST Acids, CO, CS_2, VOCs, H_2S, Inorganics, Lead, Organics, O_3, NO, NO_2, SO_2, SO_3, all applicable Greenhouse Gases (including CO_2 and methane), etc. DO NOT LIST H_2, H_2O, N_2, O_2, and Noble Gases.

[2] Give rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[3] Give rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[4] Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

Attachment L

Emissions Unit Data Sheet

Attachment L
Emission Unit Data Sheet
(INDIRECT HEAT EXCHANGER)

Control Device ID No. (must match List Form):

Equipment Information

1. Manufacturer: Victory Energy	2. Model No. F3-500-S150-G Serial No. NAv
3. Number of units: 1	4. Use Steam generation for hospital facility
5. Rated Boiler Horsepower: 500 hp	6. Boiler Serial No.: NAv
7. Date constructed: 10/2011	8. Date of last modification and explain: NA
9. Maximum design heat input per unit: 21.0 ×10^6 BTU/hr	10. Peak heat input per unit: 21.0 ×10^6 BTU/hr
11. Steam produced at maximum design output: 17,250 LB/hr 250 psig	12. Projected Operating Schedule: Hours/Day 24 Days/Week 7 Weeks/Year 26-52
13. Type of firing equipment to be used: ☐ Pulverized coal ☐ Spreader stoker ☒ Oil burners ☒ Natural Gas Burner ☐ Others, specify	14. Proposed type of burners and orientation: ☐ Vertical ☒ Front Wall ☐ Opposed ☐ Tangential ☐ Others, specify
15. Type of draft: ☐ Forced ☒ Induced	16. Percent of ash retained in furnace: NA %
17. Will flyash be reinjected? ☐ Yes ☒ No	18. Percent of carbon in flyash: NA %

Stack or Vent Data

19. Inside diameter or dimensions: 7'2" ft.	20. Gas exit temperature: 500 °F
21. Height: 114 ft.	22. Stack serves: ☐ This equipment only ☒ Other equipment also (submit type and rating of all other equipment exhausted through this stack or vent)
23. Gas flow rate: 4,689 ft^3/min	
24. Estimated percent of moisture: NAv %	

Fuel Requirements

25.	Type	Fuel Oil No.	Natural Gas	Gas (other, specify)	Coal, Type:	Other:
	Quantity (at Design Output)	150 gph@60°F	21,000 ft^3/hr	NA ft^3/hr	NA TPH	NA
	Annually	75 $\times 10^3$ gal	165.2 $\times 10^6$ ft^3/hr	NA $\times 10^6$ ft^3/hr	NA tons	NA
	Sulfur	Maximum: 0.0015 wt. % Average: 0.0015 wt. %	2000 (AP-42) gr/100 ft^3	NA gr/100 ft^3	Maximum: NA wt. %	NA
	Ash (%)	< 1	< 1	NA	Maximum NA	NA
	BTU Content	140,000 BTU/Gal. 7.0 Lbs/Gal.@60°F	1,050 BTU/ft^3	NA BTU/ft^3	NA BTU/lb	NA
	Source		Pipeline	NA	NA	NA
	Supplier	Brannon	Mountaineer	NA	NA	NA
	Halogens (Yes/No)	No	No	NA	NA	NA
	List and Identify Metals			NA	NA	NA

26. Gas burner mode of control:
☒ Manual ☐ Automatic hi-low
☐ Automatic full modulation ☐ Automatic on-off

27. Gas burner manufacture: Limpsfield

28. Oil burner manufacture: Limpsfield

29. If fuel oil is used, how is it atomized? ☒ Oil Pressure ☐ Steam Pressure ☐ Compressed Air ☐ Rotary Cup ☐ Other, specify

30. Fuel oil preheated: ☐ Yes ☒ No

31. If yes, indicate temperature: °F

32. Specify the calculated theoretical air requirements for combustion of the fuel or mixture of fuels described above actual cubic feet (ACF) per unit of fuel:
3,968 SCFM @ 60 °F, PSIA, % moisture

33. Emission rate at rated capacity: 20,584 lb/hr

34. Percent excess air actually required for combustion of the fuel described: 21.5 %

Coal Characteristics

35. Seams: NA

36. Proximate analysis (dry basis): % of Fixed Carbon: NA; % of Sulfur: NA; % of Moisture: NA; % of Volatile Matter: NA; % of Ash: NA

Emissions Stream

37. What quantities of pollutants will be emitted from the boiler before controls?

Pollutant	Pounds per Hour lb/hr	grain/ACF	@ °F	PSIA
CO	1.76	NAv	NAv	NAv
Hydrocarbons	NA	NA	NA	NA
NO_x	3.00	NAv	NAv	NAv
Pb	NA	NA	NA	NA
PM_{10}	0.50	NAv	NAv	NAv
SO_2	0.03	NAv	NAv	NAv
VOCs	0.12	NAv	NAv	NAv
Other (specify)	NA	NA	NA	NA

38. What quantities of pollutants will be emitted from the boiler after controls?

Pollutant	Pounds per Hour lb/hr	grain/ACF	@ °F	PSIA
CO	There are no add-on			
Hydrocarbons	emission controls			
NO_x				
Pb				
PM_{10}				
SO_2				
VOCs				
Other (specify)				

39. How will waste material from the process and control equipment be disposed of?
NA

40. Have you completed an *Air Pollution Control Device Sheet(s)* for the control(s) used on this Emission Unit. NA

41. Have you included the ***air pollution rates*** on the Emissions Points Data Summary Sheet? Yes

42. **Proposed Monitoring, Recordkeeping, Reporting, and Testing**

Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING PLAN: Please list (1) describe the process parameters and how they were chosen (2) the ranges and how they were established for monitoring to demonstrate compliance with the operation of this process equipment operation or air pollution control device.

Monitoring proposed is the same as in current permit for the existing boilers with the addition of required monitoring under 40 CFR 60, Subpart Dc, and 40 CFR 63, Subpart JJJJJJ.

TESTING PLAN: Please describe any proposed emissions testing for this process equipment or air pollution control device.

Emissions testing is not proposed.

RECORDKEEPING: Please describe the proposed recordkeeping that will accompany the monitoring.

Recordkeeping proposed is the same as in current permit for the existing boilers with the addition of required recordkeeping under 40 CFR 60, Subpart Dc, and 40 CFR 63, Subpart JJJJJJ.

REPORTING: Please describe the proposed frequency of reporting of the recordkeeping.

Reporting proposed is the same as in current permit for the existing boilers with the addition of required reporting under 40 CFR 60, Subpart Dc, and 40 CFR 63, Subpart JJJJJJ.

43. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty.

Yearly inspection internal/external and proper daily water treatment program.

Attachment L
Emission Unit Data Sheet
(INDIRECT HEAT EXCHANGER)

Control Device ID No. (must match List Form):

Equipment Information

1. Manufacturer: Victory Energy	2. Model No. F3-800-S300-CF Burner Serial No. NAv
3. Number of units: 1	4. Use Steam generation for hospital facility
5. Rated Boiler Horsepower: 800 hp	6. Boiler Serial No.: NAv
7. Date constructed: 10/2011	8. Date of last modification and explain: NA
9. Maximum design heat input per unit: 33.6 ×10^6 BTU/hr	10. Peak heat input per unit: 33.6 ×10^6 BTU/hr
11. Steam produced at maximum design output: 27,600 LB/hr 300 psig	12. Projected Operating Schedule: Hours/Day 24 Days/Week 7 Weeks/Year 26-52
13. Type of firing equipment to be used: ☐ Pulverized coal ☐ Spreader stoker ☒ Oil burners ☒ Natural Gas Burner ☐ Others, specify	14. Proposed type of burners and orientation: ☐ Vertical ☐ Front Wall ☐ Opposed ☐ Tangential ☐ Others, specify
15. Type of draft: ☐ Forced ☒ Induced	16. Percent of ash retained in furnace: NA %
17. Will flyash be reinjected? ☐ Yes ☒ No	18. Percent of carbon in flyash: NA %

Stack or Vent Data

19. Inside diameter or dimensions: 7'2" ft.	20. Gas exit temperature: 500 °F
21. Height: 114 ft.	22. Stack serves: ☐ This equipment only ☒ Other equipment also (submit type and rating of all other equipment exhausted through this stack or vent)
23. Gas flow rate: 7,501 ft^3/min	
24. Estimated percent of moisture: NAv %	

Fuel Requirements

25.	Type	Fuel Oil No.	Natural Gas	Gas (other, specify)	Coal, Type:	Other:
	Quantity (at Design Output)	240 gph@60°F	33,600 ft^3/hr	NA ft^3/hr	NA TPH	NA
	Annually	120 $\times 10^3$ gal	264.32 $\times 10^6$ ft^3/hr	NA $\times 10^6$ ft^3/hr	NA tons	NA
	Sulfur	Maximum: 0.0015 wt. % Average: 0.0015 wt. %	< 1 gr/100 ft^3	NA gr/100 ft^3	Maximum: NA wt. %	NA
	Ash (%)	< 1	< 1	NA	Maximum NA	NA
	BTU Content	140,000 BTU/Gal. 7.0 Lbs/Gal.@60°F	1,050 BTU/ft^3	NA BTU/ft^3	NA BTU/lb	NA
	Source		Pipeline	NA	NA	NA
	Supplier	Brannon	Mountaineer	NA	NA	NA
	Halogens (Yes/No)	No	No	NA	NA	NA
	List and Identify Metals			NA	NA	NA

26. Gas burner mode of control:
☒ Manual ☐ Automatic hi-low
☐ Automatic full modulation ☒ Automatic on-off

27. Gas burner manufacture:

28. Oil burner manufacture:

29. If fuel oil is used, how is it atomized? ☒ Oil Pressure ☐ Steam Pressure ☐ Compressed Air ☐ Rotary Cup ☐ Other, specify

30. Fuel oil preheated: ☐ Yes ☒ No

31. If yes, indicate temperature: °F

32. Specify the calculated theoretical air requirements for combustion of the fuel or mixture of fuels described above actual cubic feet (ACF) per unit of fuel:
6,346 SCFM @ 60 °F, PSIA, % moisture

33. Emission rate at rated capacity: 32,935 lb/hr

34. Percent excess air actually required for combustion of the fuel described: 21.5 %

Coal Characteristics

35. Seams: NA

36. Proximate analysis (dry basis): % of Fixed Carbon: NA; % of Sulfur: NA; % of Moisture: NA; % of Volatile Matter: NA; % of Ash: NA

Emissions Stream

37. What quantities of pollutants will be emitted from the boiler before controls?

Pollutant	Pounds per Hour lb/hr	grain/ACF	@ °F	PSIA
CO	2.82	NAv	NAv	NAv
Hydrocarbons	NA	NA	NA	NA
NO_x	4.80	NAv	NAv	NAv
Pb	NA	NA	NA	NA
PM_{10}	0.79	NAv	NAv	NAv
SO_2	0.05	NAv	NAv	NAv
VOCs	0.18	NAv	NAv	NAv
Other (specify)	NA	NA	NA	NA

38. What quantities of pollutants will be emitted from the boiler after controls?

Pollutant	Pounds per Hour lb/hr	grain/ACF	@ °F	PSIA
CO	There are no add-on			
Hydrocarbons	emission controls			
NO_x				
Pb				
PM_{10}				
SO_2				
VOCs				
Other (specify)				

39. How will waste material from the process and control equipment be disposed of?
NA

40. Have you completed an *Air Pollution Control Device Sheet(s)* for the control(s) used on this Emission Unit. NA

41. Have you included the ***air pollution rates*** on the Emissions Points Data Summary Sheet? Yes

42. **Proposed Monitoring, Recordkeeping, Reporting, and Testing**
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING PLAN: Please list (1) describe the process parameters and how they were chosen (2) the ranges and how they were established for monitoring to demonstrate compliance with the operation of this process equipment operation or air pollution control device.
Monitoring proposed is the same as in current permit for the existing boilers with the addition of required monitoring under 40 CFR 60, Subpart Dc, and 40 CFR 63, Subpart JJJJJJ.

TESTING PLAN: Please describe any proposed emissions testing for this process equipment or air pollution control device.
Emissions testing is not proposed.

RECORDKEEPING: Please describe the proposed recordkeeping that will accompany the monitoring.
Recordkeeping proposed is the same as in current permit for the existing boilers with the addition of required recordkeeping under 40 CFR 60, Subpart Dc, and 40 CFR 63, Subpart JJJJJJ.

REPORTING: Please describe the proposed frequency of reporting of the recordkeeping.
Reporting proposed is the same as in current permit for the existing boilers with the addition of required reporting under 40 CFR 60, Subpart Dc, and 40 CFR 63, Subpart JJJJJJ.

43. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty.
Yearly inspection internal/external and proper daily water treatment program.

COMBUSTION BOILER FIRING COMBUSTION CALCULATIONS
CHARLESTON AREA MEDICAL CENTER - MEMORIAL DIVISION

COMBUSTION AIR CALCULATIONS

Victory Energy 500 HP Boilers (No. 8)

Distillate (No. 2) FO Firing

Design Capacity	2.10E+07	MMBH
Burner Firing Rate (Maximum)	150.00	GPH
FO Density	6.83	lb/gal
Hourly Firing Rate	1,024.50	lb/hr
Theoretical Combustion Air Factor \1	211.70	scf/lb oil
Theoretical Air Required for Burner	2.17E+05	SCFH
	3,614.78	**SCFM (ACFM) Combustion Air**

Natural Gas Firing

Burner Firing Rate (Maximum)	20,792.08	cfh
Theoretical Combustion Air Factor \1	11.45	scf/cf gas
Theoretical Air Required for Burner	2.38E+05	SCFH
	3,967.82	**SCFM (ACFM) Combustion Air**

Victory Energy 800 HP Boilers (No. 9)

Distillate (No. 2) FO Firing

Design Capacity	3.36E+07	MMBH
Burner Firing Rate (Maximum)	240.00	GPH
FO Density	6.83	lb/gal
Hourly Firing Rate	1,639.20	lb/hr
Theoretical Combustion Air Factor \1	211.70	scf/lb oil
Theoretical Air Required for Burner	3.47E+05	SCFH
	5,783.64	**SCFM (ACFM) Combustion Air**

Natural Gas Firing

Burner Firing Rate (Maximum)	33,267.33	cfh
Theoretical Combustion Air Factor \1	11.45	scf/cf gas
Theoretical Air Required for Burner	3.81E+05	SCFH
	6,348.51	**SCFM (ACFM) Combustion Air**

\1 Source *Air Pollution Engineering Manual* , EPA AP-42

BOILER FIRING COMBUSTION CALCULATIONS
CHARLESTON AREA MEDICAL CENTER - MEMORIAL DIVISION
Page 2

FLUE GAS (EMISSION RATE) CALCULATIONS

Victory Energy 500 HP Boilers (No. 8)

Distillate (No. 2) FO Firing				
Burner Firing Rate (Maximum)	150.00	GPH		
FO Density	6.83	lb/gal		
Hourly Firing Rate	1,024.50	lb/hr		
Products of combustion @21% excess air \1	251.20	cf/lb FO	18.99	lb/lb FO
Emission Rate (Flue Gas Flow Rate)	**257,354.40**	**cf/hr**	**19,455.26**	**lb/hr**
	4,289.24	**scfm**		

Natural Gas Firing				
Burner Firing Rate (Maximum)	20,792.08	cfh		
Products of combustion @21% excess air \1	13.53	cf/cf gas	0.99	lb/cf gas
Emission Rate (Flue Gas Flow Rate)	**281,316.84**	**cf/hr**	**20,584.16**	**lb/hr**
	4,688.61	**scfm**		

Victory Energy 800 HP Boilers (No. 9)

Distillate (No. 2) FO Firing				
Burner Firing Rate (Maximum)	240.00	GPH		
FO Density	6.83	lb/gal		
Hourly Firing Rate	1,639.20	lb/hr		
Products of combustion @21% excess air \1	251.20	cf/lb FO oil	18.99	lb/lb FO
Emission Rate (Flue Gas Flow Rate)	**411,767.04**	**cf/hr**	**31,128.41**	**lb/hr**
	6,862.78	**scfm**		

Natural Gas Firing				
Burner Firing Rate (Maximum)	33,267.33	cfh		
Products of combustion @21% excess air \1	13.53	cf/cf gas	0.99	lb/cf gas
Emission Rate (Flue Gas Flow Rate)	**450,106.97**	**lb/hr**	**32,934.66**	**lb/hr**
	7,501.78	**scfm**		

\1 Source *Air Pollution Engineering Manual* , EPA AP-42

Attachment L
EMISSIONS UNIT DATA SHEET
GENERAL

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.
Identification Number (as assigned on *Equipment List Form*):

1. Name or type and model of proposed affected source:

   Caterpillar, Diesel Generator Set
   Standby 750ekW, 938 kVA
   60 Hz, 1800rpm, 480 Volts
   (CAT C27 ATAAC Diesel Engine)
   (See attached equipment specification sheets for additional information.)

2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.

3. Name(s) and maximum amount of proposed process material(s) charged per hour:

   202.9 L/hr or 53.6 Gal/hr

4. Name(s) and maximum amount of proposed material(s) produced per hour:

   Electricity, 750 kW

5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:

   Combustion of diesel fuel (No. 2 Fuel Oil)

* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

6. Combustion Data (if applicable):

(a) Type and amount in appropriate units of fuel(s) to be burned:

202.9 L/hr or 53.6 Gal/hr

(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:

Diesel Fuel (No. 2 Fuel Oil)

Saturated Hydrocarbons	70 - 80 Weight Percent
Aromatic Hydrocarbons	17 - 25 Weight Percent
Unsaturated Hydrocarbons	3 - 6 Weight Percent
Naphthalene	0.1 - 0.5 Weight Percent
Sulphur	0.0015 Weight Percent (15 ppm max)

(For additional information, please refer to MSDS provided as Attachment H.)

(c) Theoretical combustion air requirement (ACF/unit of fuel):

2,281.23 @ ambient °F and ambient psia.

(d) Percent excess air: NAv

(e) Type and BTU/hr of burners and all other firing equipment planned to be used:

Electronic unit injection with compression ignition.

(53.6 gal/hr) x (6.7 lb/gal) x (19,300 BTU/lb = 6.9 MMBTU/hr

Based on maximum fuel input and a diesel heating value of 19,300 BTU/lb.

(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:

NA

(g) Proposed maximum design heat input: 6.9 × 10^6 BTU/hr.

7. Projected operating schedule:

Hours/Day	24	Days/Week	7	Weeks/Year	52 (250 hr/yr max)

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:

@ 916.0 °F and 0.9718 psia

a.	NO_X	18.00	lb/hr	NA	grains/ACF
b.	SO_2	9.10E-03	lb/hr	NA	grains/ACF
c.	CO	4.13	lb/hr	NA	grains/ACF
d.	PM_{10}	0.53	lb/hr	NA	grains/ACF
e.	Hydrocarbons	Included with VOCs	lb/hr	NA	grains/ACF
f.	VOCs	0.48	lb/hr	NA	grains/ACF
g.	Pb	NA	lb/hr	NA	grains/ACF
h.	Specify other(s)				
	NA	NA	lb/hr	NA	grains/ACF
	NA	NA	lb/hr	NA	grains/ACF
	NA	NA	lb/hr	NA	grains/ACF
	NA	NA	lb/hr	NA	grains/ACF

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING	RECORDKEEPING
Monitoring proposed is the same as in current permit for the existing generators with the addition of required monitoring under 40 CFR 60, Subpart IIII as described in Attachment D.	Recordkeeping proposed is the same as in current permit for the existing generators with the addition of required recordkeeping under 40 CFR 60, Subpart IIII as described in Attachment D.
REPORTING	**TESTING**
Reporting proposed is the same as in current permit for the existing generators with the addition of required reporting under 40 CFR 60, Subpart IIII as described in Attachment D.	Emissions testing is not proposed.

MONITORING. PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

RECORDKEEPING. PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

REPORTING. PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

TESTING. PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

Not known.

Attachment M

Air Pollution Control Device Sheet

Attachment M
Air Pollution Control Device

This Class II Administrative Update does not include the installation of an air pollution control (APC) device. Therefore, this attachment is not applicable.

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Attachment N

Supporting Emissions Calculations

CAMC Memorial Hosptial

Permit R13-2451D

Attachment N - Supporting Calculations

EMISSION FACTORS

Equipment	Combustion Material	Power Rating	EF Units	Criteria Pollutant				
				CO	NO_x	PM_{10} [1]	SO_x	VOCs
Permitted Boilers[1,2,3]	Natural Gas	<100MMBtu/hr	lb/MMscf	84	100	7.6	0.6	5.5
	#2 Fuel Oil	<100MMBtu/hr	lb/10^3 gal	5	20	3.3	0.213	0.34
Permitted Generators[4]	Diesel Fuel	250 - 600 hp	lb/hp-hr	6.68E-03	0.031	2.20E-03	2.05E-03	4.63E-04
			lb/MMBtu	0.95	4.41	0.31	0.29	0.07
Permitted Generators[5]	Diesel Fuel	>600 hp	lb/hp-hr	5.50E-03	0.024	7.00E-04	1.21E-05	6.42E-04
			lb/MMBtu	0.85	3.2	0.1	1.52E-03	0.0819
Permitted Generator #5[6]	Diesel Fuel	3286 hp	lb/hr	9.33	65.88	0.54	3.99E-02	8.95E-02

Definitions:

CO	carbon monoxide
EF	emission factor
gal	gallon
hp	horsepower
hr	hour
lb	pound
MMBtu	million British thermal units
MMscf	million standard cubic feet
NO_x	nitrogen oxides
PM	particulate matter
SO_x	sulfur oxides
VOCs	volatile organic compounds

Notes:

1 Particulate EF for the combustion of #2 fuel oil is the sum of filterable and condensible particulate matter.

2 EFs for natural gas combustion in small boilers, from AP-42, Chapter 1, Section 4, Tables 1.4-1 and 1.4-2.

3 EFs for #2 fuel oil combustion in small boilers, from AP-42, Chapter 1, Section 3, Tables 1.3-1, 1.3-2, and 1.3-3. Sulfur content is 0.0015%, based on supplier information. See attached MSDS for details.

4 EFs for diesel fuel combustion in generators, from AP-42, Chapter 3, Section 3, Table 3.3-1. VOC emissions are comprised of exhaust aldehydes.

5 EFs for diesel fuel combustion in generators, from AP-42, Chapter 3, Section 4, Table 3.4-1. VOC emissions are comprised of 91% TOC.

6 EFs for NO_x, CO, and PM were provided by the manufacturer. EF for VOCs and SO_x, from AP-42, Chapter 3, Section 4, Tables 3.4-1, 3.4-3, and 3.4-4.
EF_{SOx} = (8.09E-03 lb/hp-hr)*(0.0015 %S)*(3286 hp) = 3.99E-02 lb/hr -and- EF_{VOC} = (4.36E-03 lb/MMBtu)*(20.5 MMBtu/hr) = 8.95E-03 lb/hr

CAMC Memorial Hospital

Permit R13-2451D

Attachment N - Supporting Calculations

CURRENT FACILITY EMISSIONS

STACK	EQUIPMENT	FUEL	RATING	FUEL CONSUMPTION	HOURS (per year)	EMISSIONS (pph)					EMISSIONS (tpy)				
						CO	NO_x	PM_{10}	SO_2	VOC	CO	NO_x	PM_{10}	SO_2	VOC
			(MMBtu/hr)	(MMscf/hr)											
1	Boiler #1	NG	14.1	0.0141	8760	1.18	1.41	0.11	0.01	0.08	5.19	6.18	0.47	0.04	0.34
	Boiler #2	NG	8.0	0.0080	8760	0.67	0.80	0.06	0.00	0.04	2.94	3.50	0.27	0.02	0.19
	Boiler #3	NG	30.2	0.0302	8760	2.54	3.02	0.23	0.02	0.17	11.11	13.23	1.01	0.08	0.73
	Boiler #4	NG	21.0	0.0210	8760	1.76	2.10	0.16	0.01	0.12	7.73	9.20	0.70	0.06	0.51
						6.16	**7.33**	**0.56**	**0.04**	**0.40**	**26.97**	**32.11**	**2.44**	**0.19**	**1.77**
				(Mgal/hr)											
1	Boiler #1	Fuel Oil	14.1	0.1007	5300	0.50	2.01	0.33	0.02	0.03	1.334	5.34	0.881	0.06	0.091
	Boiler #2	Fuel Oil	8.0	0.0571	5300	0.29	1.14	0.19	0.01	0.02	0.757	3.03	0.500	0.03	0.051
	Boiler #3	Fuel Oil	30.2	0.2157	5300	1.08	4.31	0.71	0.05	0.07	2.858	11.43	1.886	0.12	0.194
	Boiler #4	Fuel Oil	21.0	0.1500	5300	0.75	3.00	0.50	0.03	0.05	1.988	7.95	1.312	0.08	0.135
						2.62	**10.47**	**1.73**	**0.11**	**0.18**	**6.94**	**27.75**	**4.58**	**0.30**	**0.47**
					SUBTOTAL	**6.16**	**10.47**	**1.73**	**0.11**	**0.40**	**26.97**	**32.11**	**4.58**	**0.30**	**1.77**
			(MMBtu/hr)	(MMscf/hr)											
2	Laundry #1	NG	12.6	0.0126	8760	1.06	1.26	0.10	0.01	0.07	4.64	5.52	0.42	0.03	0.30
	Laundry #2	NG	12.6	0.0126	8760	1.06	1.26	0.10	0.01	0.07	4.64	5.52	0.42	0.03	0.30
					SUBTOTAL	**2.12**	**2.52**	**0.19**	**0.02**	**0.14**	**9.27**	**11.04**	**0.84**	**0.07**	**0.61**
			(MMBtu/hr)	(MMscf/hr)											
3	Boiler #5	NG	3.5	0.0035	8760	0.29	0.35	0.03	2.1E-03	0.02	1.29	1.53	0.12	0.01	0.08
4	Boiler #6	NG	3.5	0.0035	8760	0.29	0.35	0.03	2.1E-03	0.02	1.29	1.53	0.12	0.01	0.08
5	Boiler #7	NG	3.5	0.0035	8760	0.29	0.35	0.03	2.1E-03	0.02	1.29	1.53	0.12	0.01	0.08
						0.88	**1.05**	**0.08**	**0.01**	**0.06**	**3.86**	**4.60**	**0.35**	**0.03**	**0.25**
				(Mgal/hr)											
3	Boiler #5	Fuel Oil	3.5	0.0250	5300	0.13	0.50	0.08	0.01	0.01	0.331	1.33	0.219	0.01	0.023
4	Boiler #6	Fuel Oil	3.5	0.0250	5300	0.13	0.50	0.08	0.01	0.01	0.331	1.33	0.219	0.01	0.023
5	Boiler #7	Fuel Oil	3.5	0.0250	5300	0.13	0.50	0.08	0.01	0.01	0.331	1.33	0.219	0.01	0.023
						0.38	**1.50**	**0.25**	**0.02**	**0.03**	**0.99**	**3.98**	**0.66**	**0.04**	**0.07**
					SUBTOTAL	**0.88**	**1.50**	**0.25**	**0.02**	**0.06**	**3.86**	**4.60**	**0.66**	**0.04**	**0.25**

CAMC Memorial Hospital

Permit R13-2451D

Attachment N - Supporting Calculations

CURRENT FACILITY EMISSIONS

STACK	EQUIPMENT	FUEL	RATING	FUEL CONSUMPTION	HOURS (per year)	EMISSIONS (pph)					EMISSIONS (tpy)				
						CO	NO_x	PM_{10}	SO_2	VOC	CO	NO_x	PM_{10}	SO_2	VOC
			(KW)	(Hp)											
GS #1	Generator #1	Fuel Oil	520	697.3	250	3.47	16.12	1.14	1.07	0.24	0.43	2.02	0.14	0.13	0.03
GS #2	Generator #2	Fuel Oil	600	804.6	250	4.01	18.60	1.32	1.23	0.28	0.50	2.33	0.17	0.15	0.03
GS #3	Generator #3	Fuel Oil	600	804.6	250	4.01	18.60	1.32	1.23	0.28	0.50	2.33	0.17	0.15	0.03
GS #5	Generator #5	Fuel Oil	2,250	3,286	250	9.33	65.88	0.54	3.99E-02	0.09	1.17	8.24	0.07	4.98E-03	0.01
					SUBTOTAL	20.82	119.20	4.32	3.57	0.89	2.60	14.90	0.54	0.45	0.11
EOSS	Sterilizer #1	NA	NA	NA	NA	--	--	--	--	NA	--	--	--	--	NA
	Sterilizer #2	NA	NA	NA	NA	--	--	--	--	NA	--	--	--	--	NA
	Sterilizer #3	NA	NA	NA	NA	--	--	--	--	NA	--	--	--	--	NA
					SUBTOTAL	--	--	--	--	0.75	--	--	--	--	0.25
			Throughput (gallons)												
ST #1	Storage Tank #1	Fuel Oil	3,600		NA	--	--	--	--	--	--	--	--	--	5.0E-05
ST #2	Storage Tank #2	Fuel Oil	3,600		NA	--	--	--	--	--	--	--	--	--	5.0E-05
ST #3	Storage Tank #3	Fuel Oil	8,000		NA	--	--	--	--	--	--	--	--	--	6.5E-05
					SUBTOTAL	--	--	--	--	--	--	--	--	--	1.7E-04
					TOTAL CURRENT SITE EMISSIONS	29.98	133.69	6.49	3.71	2.24	42.71	62.64	6.61	0.85	2.99

CAMC Memorial Hospital

Permit R13-2451D

Attachment N - Supporting Calculations

PROPOSED FACILITY EMISSIONS

STACK	EQUIPMENT	FUEL	RATING	FUEL CONSUMPTION	HOURS (per year)	EMISSIONS (pph)					EMISSIONS (tpy)				
						CO	NO_x	PM_{10}	SO_2	VOC	CO	NO_x	PM_{10}	SO_2	VOC
			(MMBtu/hr)	(MMscf/hr)											
1	Boiler #4	NG	21.0	0.0210	8260	1.76	2.10	0.16	0.01	0.12	7.29	8.67	0.66	0.05	0.48
				(Mgal/hr)											
1	Boiler #4	Fuel Oil	21.0	0.1500	500	0.75	3.00	0.50	0.03	0.05	0.19	0.75	1.31	0.01	0.013
					SUBTOTAL	2.51	5.10	0.65	0.04	0.17	7.47	9.42	1.97	0.06	0.49
			(MMBtu/hr)	(MMscf/hr)											
2	Laundry #1	NG	12.6	0.0126	8760	1.06	1.26	0.10	0.01	0.07	4.64	5.52	0.42	0.03	0.30
	Laundry #2	NG	12.6	0.0126	8760	1.06	1.26	0.10	0.01	0.07	4.64	5.52	0.42	0.03	0.30
					SUBTOTAL	2.12	2.52	0.19	0.02	0.14	9.27	11.04	0.84	0.07	0.61
			(MMBtu/hr)	(MMscf/hr)											
3	Boiler #5	NG	3.5	0.0035	8260	0.29	0.35	0.03	2.1E-03	0.02	1.21	1.45	0.11	0.01	0.08
4	Boiler #6	NG	3.5	0.0035	8260	0.29	0.35	0.03	2.1E-03	0.02	1.21	1.45	0.11	0.01	0.08
5	Boiler #7	NG	3.5	0.0035	8260	0.29	0.35	0.03	2.1E-03	0.02	1.21	1.45	0.11	0.01	0.08
				(Mgal/hr)											
3	Boiler #5	Fuel Oil	3.5	0.0250	500	0.13	0.50	0.08	0.01	0.01	0.03	0.13	0.02	0.00	0.002
4	Boiler #6	Fuel Oil	3.5	0.0250	500	0.13	0.50	0.08	0.01	0.01	0.03	0.13	0.02	0.00	0.002
5	Boiler #7	Fuel Oil	3.5	0.0250	500	0.13	0.50	0.08	0.01	0.01	0.03	0.13	0.02	0.00	0.002
					SUBTOTAL	1.26	2.55	0.33	0.02	0.08	3.74	4.71	0.39	0.03	0.24
			(MMBtu/hr)	(MMscf/hr)											
1	Boiler #8	NG	21.0	0.0210	8260	1.76	2.10	0.16	1.3E-02	0.12	7.29	8.67	0.66	0.05	0.48
	Boiler #9	NG	33.6	0.0336	8260	2.82	3.36	0.26	2.0E-02	0.18	11.66	13.88	1.05	0.08	0.76
				(Mgal/hr)											
1	Boiler #8	Fuel Oil	21.0	0.1500	500	0.75	3.00	0.50	0.03	0.05	0.19	0.75	0.12	0.01	0.013
	Boiler #9	Fuel Oil	33.6	0.2400	500	1.20	4.80	0.79	0.05	0.08	0.30	1.20	0.20	0.01	0.020
					SUBTOTAL	6.54	13.26	1.70	0.12	0.43	19.43	24.50	2.04	0.16	1.27

CAMC Memorial Hospital

Permit R13-2451D

Attachment N - Supporting Calculations

PROPOSED FACILITY EMISSIONS

STACK	EQUIPMENT	FUEL	RATING	FUEL CONSUMPTION	HOURS (per year)	EMISSIONS (pph)					EMISSIONS (tpy)				
						CO	NO_x	PM_{10}	SO_2	VOC	CO	NO_x	PM_{10}	SO_2	VOC
			(KW)	(Hp)											
GS #1	Generator #1	Fuel Oil	520	697.3	500	2.86	12.48	0.36	0.01	0.33	0.72	3.12	0.09	0.002	0.08
GS #2	Generator #2	Fuel Oil	600	804.6	500	3.30	14.40	0.42	0.01	0.38	0.83	3.60	0.11	0.002	0.10
GS #3	Generator #3	Fuel Oil	600	804.6	500	3.30	14.40	0.42	0.01	0.38	0.83	3.60	0.11	0.002	0.10
GS #5	Generator #5	Fuel Oil	2,250	3,017	500	9.33	65.88	0.54	3.99E-02	0.09	2.33	16.47	0.14	9.97E-03	0.02
GS #6	Generator #6	Fuel Oil	750	1,006	500	4.13	18.00	0.53	9.10E-03	0.48	1.03	4.50	0.13	2.28E-03	0.12
					SUBTOTAL	22.92	125.16	2.27	0.07	1.67	5.73	31.29	0.57	0.02	0.42
EOSS	Sterilizer #1	NA	NA	NA	NA	--	--	--	--	NA	--	--	--	--	NA
	Sterilizer #2	NA	NA	NA	NA	--	--	--	--	NA	--	--	--	--	NA
	Sterilizer #3	NA	NA	NA	NA	--	--	--	--	NA	--	--	--	--	NA
					SUBTOTAL	--	--	--	--	0.75	--	--	--	--	0.25
			Throughput (gallons)												
ST #1	Storage Tank #1	Fuel Oil	3,600		NA	--	--	--	--	--	--	--	--	--	5.0E-05
ST #2	Storage Tank #2	Fuel Oil	3,600		NA	--	--	--	--	--	--	--	--	--	5.0E-05
ST #3	Storage Tank #3	Fuel Oil	8,000		NA	--	--	--	--	--	--	--	--	--	6.5E-05
					SUBTOTAL	--	--	--	--	--	--	--	--	--	1.7E-04
					TOTAL PROPOSED SITE EMISSIONS	35.34	148.59	5.14	0.27	3.25	45.64	80.96	5.80	0.33	3.28
					NET PROPOSED EMISSION DIFFERENCE	5.36	14.90	-1.35	-3.44	1.01	2.93	18.32	-0.81	-0.52	0.30

CAMC Memorial Hospital

Permit R13-2451D

Attachment N - Supporting Calculations

PROPOSED FACILITY GREEN HOUSE GAS EMISSIONS

STACK	EQUIPMENT	FUEL	RATING	FUEL CONSUMPTION	HOURS (per year)	EMISSIONS (TPY)			
						CO_2	CH_4	N_2O	CO_2e
			(MMBtu/hr)	(MMscf/hr)					
1	Boiler #4	NG	21.0	0.0210	8,260	1.04E+04	2.01E+01	5.93E+00	**1.05E+04**
				(Mgal/hr)					
1	Boiler #4	Fuel Oil	21.0	0.1500	500	8.39E+02	2.67E+00	2.15E+00	**8.44E+02**
								SUBTOTAL	**1.13E+04**
			(MMBtu/hr)	(MMscf/hr)					
2	Laundry #1	NG	12.6	0.0126	8,760	6.64E+03	1.28E+01	3.77E+00	**6.66E+03**
	Laundry #2	NG	12.6	0.0126	8,760	6.64E+03	1.28E+01	3.77E+00	**6.66E+03**
								SUBTOTAL	**1.33E+04**
			(MMBtu/hr)	(MMscf/hr)					
5	Boiler #5	NG	3.5	0.0035	8,260	1.74E+03	3.35E+00	9.88E-01	**1.74E+03**
4	Boiler #6	NG	3.5	0.0035	8,260	1.74E+03	3.35E+00	9.88E-01	**1.74E+03**
3	Boiler #7	NG	3.5	0.0035	8,260	1.74E+03	3.35E+00	9.88E-01	**1.74E+03**
									5.23E+03
				(Mgal/hr)					
5	Boiler #5	Fuel Oil	3.5	0.0250	500	1.40E+02	4.46E-01	3.59E-01	**1.41E+02**
4	Boiler #6	Fuel Oil	3.5	0.0250	500	1.40E+02	4.46E-01	3.59E-01	**1.41E+02**
3	Boiler #7	Fuel Oil	3.5	0.0250	500	1.40E+02	4.46E-01	3.59E-01	**1.41E+02**
									4.22E+02
								SUBTOTAL	**5.65E+03**
			(MMBtu/hr)	(MMscf/hr)					
1	Boiler #8	NG	21.0	0.0210	8,260	1.04E+04	2.01E+01	5.93E+00	**1.05E+04**
	Boiler #9	NG	33.6	0.0336	8,260	1.67E+04	3.21E+01	9.48E+00	**1.67E+04**
									2.72E+04
				(Mgal/hr)					
1	Boiler #8	Fuel Oil	21.0	0.1500	500	8.39E+02	2.67E+00	2.15E+00	**8.44E+02**
	Boiler #9	Fuel Oil	33.6	0.2400	500	1.34E+03	4.28E+00	3.44E+00	**1.35E+03**
									2.19E+03
								SUBTOTAL	**2.94E+04**

PROPOSED FACILITY GREEN HOUSE GAS EMISSIONS

STACK	EQUIPMENT	FUEL	RATING	FUEL CONSUMPTION	HOURS (per year)	EMISSIONS (TPY)			
						CO_2	CH_4	N_2O	CO_2e
			(KW)	(Hp)					
GS #1	Generator #1	Fuel Oil	520	697.3	500	7.15E+01	2.26E-01	1.82E-01	**7.19E+01**
GS #2	Generator #2	Fuel Oil	600	804.6	500	8.25E+01	2.61E-01	2.10E-01	**8.30E+01**
GS #3	Generator #3	Fuel Oil	600	804.6	500	8.25E+01	2.61E-01	2.10E-01	**8.30E+01**
GS #5	Generator #5	Fuel Oil	2,250	3,017	500	3.10E+02	9.77E-01	7.87E-01	**3.11E+02**
GS #6	Generator #6	Fuel Oil	750	1,006	500	1.03E+02	3.26E-01	2.62E-01	**1.04E+02**
								SUBTOTAL	**6.53E+02**

TOTAL PROPOSED FACILITY GHG EMISSIONS	**6.03E+04**

DIESEL GENERATOR SET

Image shown may not reflect actual package.

STANDBY
750 ekW 938 kVA
60 Hz 1800rpm 480 Volts

Caterpillar is leading the power generation marketplace with Power Solutions engineered to deliver unmatched flexibility, expandability, reliability, and cost-effectiveness.

FEATURES

FUEL/EMISSIONS STRATEGY
- EPA Certified for Stationary Emergency Application (EPA Tier 2 emissions levels)

DESIGN CRITERIA
- The generator set accepts 100% rated load in one step per NFPA 110 and meets ISO 8528-5 transient response.

UL 2200/ CSA - Optional
- UL 2200 listed packages
- CSA Certified

Certain restrictions may apply. Consult with your Cat® Dealer.

FULL RANGE OF ATTACHMENTS
- Wide range of bolt-on system expansion attachments, factory designed and tested
- Flexible packaging options for easy and cost effective installation

SINGLE-SOURCE SUPPLIER
- Fully prototype tested with certified torsional vibration analysis available

WORLDWIDE PRODUCT SUPPORT
- Cat dealers provide extensive post sale support including maintenance and repair agreements
- Cat dealers have over 1,800 dealer branch stores operating in 200 countries
- The Cat S•O•S℠ program cost effectively detects internal engine component condition, even the presence of unwanted fluids and combustion by-products

CAT® C27 ATAAC DIESEL ENGINE
- Utilizes ACERT™ Technology
- Reliable, rugged, durable design
- Four-cycle diesel engine combines consistent performance and excellent fuel economy with minimum weight
- Electronic engine control

CAT GENERATOR
- Designed to match the performance and output characteristics of Cat diesel engines
- Single point access to accessory connections
- UL 1446 recognized Class H insulation

CAT EMCP 4 CONTROL PANELS
- Simple user friendly interface and navigation
- Scalable system to meet a wide range of customer needs
- Integrated Control System and Communications Gateway

SEISMIC CERTIFICATION
- Seismic Certification available
- Anchoring details are site specific, and are dependent on many factors such as generator set size, weight, and concrete strength. IBC Certification requires that the anchoring system used is reviewed and approved by a Professional Engineer
- Seismic Certification per Applicable Building Codes: IBC 2000, IBC 2003, IBC 2006, IBC 2009, CBC 2007
- Pre-approved by OSHPD and carries an OSP-0084-10 for use in healthcare projects in California

FACTORY INSTALLED STANDARD & OPTIONAL EQUIPMENT

System	Standard	Optional
Air Inlet	• Air cleaner	
Cooling	• Package mounted radiator	
Exhaust	• Exhaust flange outlet	[ ] Exhaust mufflers
Fuel	• Primary fuel filter with integral water separator • Secondary fuel filters • Fuel priming pump	
Generator	• Matched to the performance and output characteristics of Cat engines	[ ] Oversize and premium generators [ ] Permanent magnet excitation (PMG) [ ] Internal excited (IE) [ ] Anti-condensation space heaters
Power Termination	• Bus bar	[ ] Circuit breakers, UL listed [ ] Circuit breakers, IEC compliant
Control Panel	• EMCP 4 Genset Controller	[ ] EMCP 4.2 [ ] EMCP 4.3 [ ] EMCP 4.4 [ ] Generator temperature monitoring and protection [ ] Load share module [ ] Digital I/O module [ ] Remote monitoring software
Mounting		[ ] Rubber vibration isolators
Starting/Charging		[ ] Battery chargers [ ] Oversize batteries [ ] Jacket water heater [ ] Heavy duty starting system [ ] Charging alternator
General	• Paint - Caterpillar Yellow except rails and radiators gloss black	The following options are based on regional and product configuration: [ ] Seismic Certification per Applicable Building Codes: IBC 2000, IBC 2003, IBC 2006, IBC 2009, CBC 2007 [ ] EU Certificate of Conformance (CE) [ ] UL 2200 package [ ] CSA Certification [ ] EEC Declaration of Conformity [ ] Enclosures- sound attenuated, weather protective [ ] Automatic transfer switches (ATS) [ ] Integral & sub-base fuel tanks [ ] Integral & sub-base UL listed dual wall fuel tanks

STANDBY 750ekW 938kVA

60Hz 1800rpm 480Volts

SPECIFICATIONS

CAT GENERATOR

Frame size 1296
Excitation ..... Permanent Magnet
Pitch 0.6667
Number of poles 4
Number of bearings ..... Single bearing
Number of Leads 012
Insulation ..... UL 1446 Recognized Class H with tropicalization and antiabrasion
- Consult your Caterpillar dealer for available voltages

IP Rating .....Drip Proof IP23
Alignment .....Pilot Shaft
Overspeed capability 150
Wave form Deviation (Line to Line) .....Less than 5% deviation
Voltage regulator.....3 Phase sensing with selectible volts/Hz
Voltage regulation .....Less than +/- 1/2% (steady state)
Less than +/- 1% (no load to full load)

CAT DIESEL ENGINE

C27 TA, V-12, 4-Stroke Water-cooled Diesel
Bore ..... 137.20 mm (5.4 in)
Stroke ..... 152.40 mm (6.0 in)
Displacement .....27.03 L (1649.47 in^3)
Compression Ratio 16.5:1
Aspiration ..... TA
Fuel System ..... MEUI
Governor Type ..... ADEM™ A4

CAT EMCP 4 SERIES CONTROLS

EMCP 4 controls including:
- Run / Auto / Stop Control
- Speed and Voltage Adjust
- Engine Cycle Crank
- 24-volt DC operation
- Environmental sealed front face
- Text alarm/event descriptions

Digital indication for:
- RPM
- DC volts
- Operating hours
- Oil pressure (psi, kPa or bar)
- Coolant temperature
- Volts (L-L & L-N), frequency (Hz)
- Amps (per phase & average)
- ekW, kVA, kVAR, kW-hr, %kW, PF

Warning/shutdown with common LED indication of:
- Low oil pressure
- High coolant temperature
- Overspeed
- Emergency stop
- Failure to start (overcrank)
- Low coolant temperature
- Low coolant level

Programmable protective relaying functions:
- Generator phase sequence
- Over/Under voltage (27/59)
- Over/Under Frequency (81 o/u)
- Reverse Power (kW) (32)
- Reverse reactive power (kVAr) (32RV)
- Overcurrent (50/51)

Communications:
- Six digital inputs (4.2 only)
- Four relay outputs (Form A)
- Two relay outputs (Form C)
- Two digital outputs
- Customer data link (Modbus RTU)
- Accessory module data link
- Serial annunciator module data link
- Emergency stop pushbutton

Compatible with the following:
- Digital I/O module
- Local Annunciator
- Remote CAN annunciator
- Remote serial annunciator

STANDBY 750ekW 938kVA

60Hz 1800rpm 480Volts

TECHNICAL DATA

Open Generator Set - - 1800rpm/60 Hz/480 Volts	DM9071	
EPA Certified for Stationary Emergency Application (EPA Tier 2 emissions levels)		
Generator Set Package Performance		
Genset Power rating @ 0.8 pf	937.5 kVA	
Genset Power rating with fan	750 ekW	
Fuel Consumption		
100% load with fan	202.9 L/hr	53.6 Gal/hr
75% load with fan	162.4 L/hr	42.9 Gal/hr
50% load with fan	116.2 L/hr	30.7 Gal/hr
Cooling System [1]		
Air flow restriction (system)	0.12 kPa	0.48 in. water
Engine coolant capacity	55.0 L	14.5 gal
Inlet Air		
Combustion air inlet flow rate	58.7 m^3/min	2073.0 cfm
Exhaust System		
Exhaust stack gas temperature	509.3 ° C	948.7 ° F
Exhaust gas flow rate	158.9 m^3/min	5611.5 cfm
Exhaust flange size (internal diameter)	203 mm	8 in
Exhaust system backpressure (maximum allowable)	10.0 kPa	40.2 in. water
Heat Rejection		
Heat rejection to coolant (total)	324 kW	18426 Btu/min
Heat rejection to exhaust (total)	742 kW	42197 Btu/min
Heat rejection to aftercooler	138 kW	7848 Btu/min
Heat rejection to atmosphere from engine	100 kW	5687 Btu/min
Heat rejection to atmosphere from generator	56.5 kW	3216.0 Btu/min
Alternator [2]		
Motor starting capability @ 30% voltage dip	2117 skVA	
Frame	1296	
Temperature Rise	150 ° C	270 ° F
Lube System		
Sump refill with filter	68.0 L	18.0 gal
Emissions (Nominal) [3]		
NOx g/hp-hr	5.25 g/hp-hr	
CO g/hp-hr	.25 g/hp-hr	
HC g/hp-hr	.03 g/hp-hr	
PM g/hp-hr	.021 g/hp-hr	

[1] For ambient and altitude capabilities consult your Cat dealer. Air flow restriction (system) is added to existing restriction from factory.

[2] Generator temperature rise is based on a 40ºC ambient per NEMA MG1-32. UL 2200 Listed packages may have oversized generators with a different temperature rise and motor starting characteristics.

[3] Emissions data measurement procedures are consistent with those described in EPA CFR 40 Part 89, Subpart D & E and ISO8178-1 for measuring HC, CO, PM, NOx. Data shown is based on steady state operating conditions of 77ºF, 28.42 in HG and number 2 diesel fuel with 35º API and LHV of 18,390 btu/lb. The nominal emissions data shown is subject to instrumentation, measurement, facility and engine to engine variations. Emissions data is based on 100% load and thus cannot be used to compare to EPA regulations which use values based on a weighted cycle.

RATING DEFINITIONS AND CONDITIONS

Applicable Codes and Standards: AS1359, CSA C22.2 No 100-04, UL142, UL489, UL601, UL869, UL2200, NFPA 37, NFPA 70, NFPA 99, NFPA 110, IBC, IEC60034-1, ISO3046, ISO8528, NEMA MG 1-22, NEMA MG 1-33, 72/23/EEC, 98/37/EC, 2004/108/EC

Standby - Output available with varying load for the duration of the interruption of the normal source power. Average power output is 70% of the standby power rating. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

Ratings are based on SAE J1349 standard conditions. These ratings also apply at ISO3046 standard conditions.

Fuel Rates are based on fuel oil of 35° API (16° C or 60° F) gravity having an LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 29° C (85° F) and weighing 838.9 g/liter (7.001 lbs/U.S. gal.).

STANDBY 750ekW 938kVA

60Hz 1800rpm 480Volts

DIMENSIONS

Package Dimensions		
Length	4141.6 mm	163.05 in
Width	1823.3 mm	71.78 in
Height	2210.5 mm	87.03 in

NOTE: For reference only - do not use for installation design. Please contact your local dealer for exact weight and dimensions.

Feature Code: C27DR69

Gen. Arr. Number: 385-0654

Source: U.S. Sourced

LEHE0455-00 (08/13)

www.Cat-ElectricPower.com

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
2013 MODEL YEAR
CERTIFICATE OF CONFORMITY
WITH THE CLEAN AIR ACT OF 1990

OFFICE OF TRANSPORTATION AND AIR QUALITY
ANN ARBOR, MICHIGAN 48105

Certificate Issued To: **Caterpillar Inc.**
(U.S. Manufacturer or Importer)

Certificate Number: DCPXL27.0NZS-028

Effective Date: 10/05/2012

Expiration Date: 12/31/2013

Byron J. Bunker, Acting Division Director
Compliance Division

Issue Date: 10/05/2012

Revision Date: N/A

Model Year: 2013
Manufacturer Type: Original Engine Manufacturer
Engine Family: DCPXL27.0NZS

Mobile/Stationary Indicator: Stationary
Emissions Power Category: 560<kW<=2237
Fuel Type: Diesel
After Treatment Devices: No After Treatment Devices Installed
Non-after Treatment Devices: Engine Design Modification, Electronic Control

Pursuant to Section 111 and Section 213 of the Clean Air Act (42 U.S.C. sections 7411 and 7547) and 40 CFR Part 60, and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which have been found to conform to applicable requirements and which represent the following engines, by engine family, more fully described in the documentation required by 40 CFR Part 60 and produced in the stated model year.

This certificate of conformity covers only those new compression-ignition engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Part 60 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Part 60.

It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 1068 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR Part 60. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void *ab initio* for other reasons specified in 40 CFR Part 60.

This certificate does not cover engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.

SB-149 500 hp Victory Energy Firetube Boiler

One (1) Victory Energy, "***Frontier***" Series, ***Model: F3-500-S150-G#2 Oil.*** Firetube Boiler, 3-Pass 500 BHP, 250 psig 30 PPM Super High Efficiency Low NOx burner. The unit will be designed to produce 17,250 PPH (nominal 500 BHP) of steam at an operating pressure up to 210 psig. The unit will include the following:

Quantity: One (1) Boiler ➢ Capacity (500 HP) 17,250 PPH ➢ Design: Wetback ➢ Heating Surface 2,500 SQ.FT. of heating surface – 5 sq. ft per BHP ➢ Design Pressure: 250 PSIG ➢ Operating Pressure: Up to 210 PSIG

Fuel savings utilizing the Ware exclusive Super High Efficiency system versus a standard low nox burner with linkages is estimated to be 8 to 12% depending on your load. The attached performance criteria shows those savings in dollars and is based upon a 70% load. Fuel savings is estimated to be $5,390.00 per month.

- **Burner:** Limpsfield
  - Primary Fuel: .....Natural Gas ➢ 2nd fuel type:.....#2 Oil
  - NOx requirements:.....30 PPM
  - Electrical: .....Not Defined
  - Gas pressure: .....max 6 psi
  - Codes:.....NFPA
  - Flue Gas Recirculation .....YES
  - Boiler Location:.....Indoors

Limpsfield LCNO 62 burner
Designed max firing rate 21,000,000 Btu/hr
To fire Natural Gas and # 2 Oil
Split head gas injection
Stainless steel diffuser and blast tube tip
2 oil pressure atomized oil lance and nozzle assembly
Burner mounted UL oil train (comprising of 2 x Parker Hannifin oil solenoid valves)
Autoflame Self Check UV sensor
Autoflame gas valve/oil valve and servo motor
Air damper assembly and servo motor
Pilot gas train (2 x electrical solenoid valves)
Burner mounted terminal box

Control panel – Burner mounted UL approved main panel

Equipped with Autoflame MM Mk 7 evolution module
Burner on/off push button
Gas selected indication lamp
Oil selected indication lamp
System error/lockout push button
Mains voltage transformer
Servo voltage transformer
Output to induced FGR valve and servo motor
Output and to FD fan VFD or starter
Output to oil pump starter
Fitted with cooling fan

Transitional ductwork
To connect combustion air fan to burner inlet
Finished to match burner

Combustion air fan (suitable for combustion air and induced FGR)
Finished to match the burner
UL recognized motor 40 HP
Supplied with AV mounts

FGR/combustion air mixing silencer assembly
Designed to mix the flue gases with the combustion air prior to the fan
10" FGR valve supplied for FGR control
Large servo motor for FGR control
Air balancing damper and servo motor
Finished to match burner

Oil pump set
Oil pump to supply # 2 oil to the burner at a pressure of 400 psi
Complete with UL listed motor
Oil pump set supplied fully built but will require pipe work to the inlet of oil pump set and from the oil pump set to the inlet of the burner. All spillback oil should be returned to the oil tank.
Oil must be clean and filtered

Gas train
This gas train meets NFPA 85 / CSD – 1 recommendations
3 - Inch gas control train (based on Natural gas having a CV of 1000 Btu per cubic feet, pressure drop over gas train = 20 inches WC).
2 x Dungs ½ inch pilot gas valves
1 x Dungs ½ inch pilot gas pressure regulator
1 x Dungs/Medinus 3 inch gas pressure regulator,
1 x Dungs 3 inch double block valve with POC switch
1 x Dungs VPS system
Max inlet pressure 6 psi

Burner mounting spacer disc
Finished to match burner

Autoflame sensors

Steam pressure sensor
Air pressure sensor
Gas pressure sensor

- **Boiler Trim info:**
  - LWCO (mounted)
  - By pass shunt button for water column blow down
  - Auxiliary LWCO (mounted)
  - Pressuretrols: .....Operating / Limit (mounted)
  - Low Firehold Switch
  - NEMA 1 – 12" x 12" Junction Box (mounted)
  - Pressure Gauge (ship loose)
  - Safety Valves (ship loose)
  - Chemical Feed connection with diffuser tube.
  - Surface blowdown connection with skimmer tube
  - Bottom Blow Down Valves (mounted)
  - Manual Feedwater Valves
  - Flanged stack opening
  - Integral "locking quadrant" Stack damper
  - Blast Gate observation port

- Nozzle sized to operate between 100 – 210 PSI.

GENERAL DATA
-3-Pass, Scotch Marine Firetube Boiler.
-Built to ASME Code Section I and National Board Rules.
-Full Skid Base.
-2" Insulation and "galvanneal" sheet metal jacket on boiler shell.
-Hinged front and rear flue doors.
-Front and rear observation ports.

(water column) (On/Off operation)	1 LWCO - 250psig	1"	McDonnell Miller 194
Level gauge valves with chains and handles	1	-	McDonnell Miller
By-pass shunt button for water column blowdown	1	-	VEO
ALWCO (probe in Shell) – 250 psig w/ manual reset button	1	1"	Warrick 26MB1
Steam Pressure Gauge w/ siphon loop	1	6.0"	Ashcroft
Steam Drum Vent Valve	1	1"	Vogt
Pressure Switch – Operating Range 10 – 250psig –	1	-	Honeywell or equal
Pressure Switch– Limiting, Range 10 - 250 psig –	1	-	Honeywell or equal
Pressure Switch – Modulation	1	-	Included with burner
Low Firehold Switch	1	-	ASCO-PB10A/KJ11 or equal
Junction Box Assembly w/ wire and conduit.	1	12" x 12"	NEMA 1
Integral Stack Damper –"locking quadrant"	1	24"	VEO
Bottom Blow Down Valve (quick)	2	1.5"	United Brass - 425
Bottom Blow Down Valve (Slow)	1	1.5"	United Brass - 525
Surface Blow down valves with skimmer tube	1	1"	VEO
Boiler Safety Valve #1 (loose)	1	1.5"x1.5"	Kunkle – Set @ 250 psi
Boiler. Safety Valve #2 (loose)	1	2.0"x2.0"	Kunkle - Set @ 250 psi
Manual-Feedwater Gate – (mtd)	1	2.0"	Vogt
Manual-Feedwater Check – (mtd)	1	2.0"	Vogt
Chemical feed connection with diffuser tube (No valves supplied)	1	1"	TBD
Nozzle sized to operate between – 100 – 210 PSI.	1	6"	VEO
Mount burner and controls	1	Inc.	VEO
Electrical test	1	Inc.	VEO
FGR Piping	1	Inc.	VEO

SB-150 800 hp Victory Energy Firetube Boiler

One (1) Victory Energy, "*Frontier*" Series, *Model: F3-800-S300-CF Burner.* Firetube Boiler, 3-Pass 800 BHP, 300 psig with a Super High Efficiency 30 PPM Low NOx burner. The unit will be designed to produce 27,600 PPH (nominal 800 BHP) of steam at an operating pressure up to 250 psig. The unit will include the following:

Quantity: One (1) Boiler ➢ Capacity (800 HP) 27,600 PPH ➢ Design: Wetback ➢ Heating Surface 4,018 SQ.FT. of heating surface – 5 sq. ft per BHP ➢ Design Pressure: 300 PSIG ➢ Operating Pressure: Up to 250 PSIG

Fuel savings utilizing the Ware exclusive Super High Efficiency system versus a standard low nox burner with linkages is estimated to be 8 to 12% depending on your load. The attached performance criteria shows those savings in dollars and is based upon a 70% load. Fuel savings is estimated to be $8,856.00 per month.

Burner: Limpsfield

- Primary Fuel: .....Natural Gas, Secondary Fuel .....#2 Oil
- NOx requirements:.....**30 PPM**
- Electrical: .....480 volt, 3 phase
- Gas pressure: .....max 6 psi
- Codes:.....NFPA
- Flue Gas Recirculation .....YES
- Boiler Location: .....Indoors

Limpsfield LCNO 100 burner

Designed max firing rate 33,600,000 Btu/hr
To fire Natural Gas and # 2 Oil
Split head gas injection
Stainless steel diffuser and blast tube tip
2 oil pressure atomized oil lance and nozzle assembly
Burner mounted UL oil train (comprising of 2 x Parker Hannifin oil solenoid valves)
Autoflame Self Check UV sensor
Autoflame gas valve/oil valve and servo motor
Air damper assembly and servo motor
Pilot gas train (2 x electrical solenoid valves)
Burner mounted terminal box

Control panel – Burner mounted UL approved main panel

Equipped with Autoflame MM Mk 7 evolution module
Burner on/off push button
Gas selected indication lamp
Oil selected indication lamp
System error/lockout push button
Mains voltage transformer
Servo voltage transformer
Output to induced FGR valve and servo motor
Output and to FD fan VFD or starter
Output to oil pump starter
Fitted with cooling fan

Transitional ductwork
To connect combustion air fan to burner inlet

Finished to match burner

Combustion air fan (suitable for combustion air and induced FGR)
Finished to match the burner
UL recognized motor 50 HP
Supplied with AV mounts

FGR/combustion air mixing silencer assembly

Designed to mix the flue gases with the combustion air prior to the fan
12" FGR valve supplied for FGR control
Large servo motor for FGR control
Air balancing damper and servo motor
Finished to match burner

Oil pump set

Oil pump to supply # 2 oil to the burner at a pressure of 400 psi
Complete with UL listed motor
Oil pump set supplied fully built but will require pipe work to the inlet of oil pump set and from the oil pump set to the inlet of the burner. All spillback oil should be returned to the oil tank.
Oil must be clean and filtered

Gas train

This gas train meets NFPA 85 / CSD – 1 recommendations
4 - Inch gas control train (based on Natural gas having a CV of 1000 Btu per cubic feet, pressure drop over gas train = 21 inches WC).
2 x Dungs ½ inch pilot gas valves
1 x Dungs ½ inch pilot gas pressure regulator
1 x Dungs/Medinus 4 inch gas pressure regulator,
1 x Dungs 4 inch double block valve with POC switches
1 x Dungs VPS system
Max inlet pressure 6 psi

Burner mounting spacer disc
Finished to match burner

Autoflame sensors
Steam pressure sensor
Air pressure sensor
Gas pressure sensor

- **Boiler Trim info:**
  - LWCO (mounted)
  - By pass shunt button for water column blow down
  - Auxiliary LWCO (mounted)
  - Pressuretrols: .....Operating / Limit (mounted)
  - Low Firehold Switch
  - NEMA 1 – 12" x 12" Junction Box (mounted)
  - Pressure Gauge (ship loose)
  - Safety Valves (ship loose)
  - Chemical Feed connection with diffuser tube.
  - Surface blowdown connection with skimmer tube (mounted)
  - Bottom Blow Down Valves (mounted)
  - Manual Feedwater Valves
  - Flanged stack opening
  - Integral "locking quadrant" Stack damper

- Blast Gate observation port

GENERAL DATA

-3-Pass, Scotch Marine Firetube Boiler.
-Built to ASME Code Section I and National Board Rules.
-Full Skid Base.
-2" Insulation and "galvanneal" sheet metal jacket on boiler shell.
-Hinged front and rear flue doors.
-Front and rear observation ports.

LWCO - 350psig (water column) - Flanged (On/Off operation)	1	1 "	Clark Reliance WO350
Level gauge valves with chains and handles	1	-	Clark Reliance
By-pass shunt button for water column blowdown	1	-	VEO
ALWCO (Probe Holder) – 350 psig w/ manual reset button	1	1"	Clark Reliance
Steam Pressure Gauge w/ siphon loop	1	6.0"	Ashcroft
Steam Drum Vent Valve	1	1"	Vogt
Pressure Switch – Operating Range 10 – 250psig –	1	-	Honeywell or equal
Pressure Switch– Limiting, Range 10 - 250 psig –	1	-	Honeywell or equal
Pressure Switch – Modulation	1	-	Included with burner
Low Firehold Switch	1	-	ASCO-PB10A/KJ11 or equal
Junction Box Assembly w/ wire and conduit.	1	12" x 12"	NEMA 1
Integral Stack Damper –"locking quadrant"	1	26"	VEO
Bottom Blow Down Valve (quick) - Flanged	2	2.0"	United Brass - 625
Bottom Blow Down Valve (Slow) - Flanged	1	2.0"	United Brass - 725
Surface Blow down connection with skimmer tube	1	1"	VEO
Boiler Safety Valve #1 (loose) - Flanged	1	TBD	Kunkle – 300 Set @ 300 psi
Boiler. Safety Valve #2 (loose) - Flanged	1	TBD	Kunkle - 300 Set @ 300 psi
Manual-Feedwater Gate – (mtd) - Flanged	1	2.0"	Vogt
Manual-Feedwater Check – (mtd) - Flanged	1	2.0"	Vogt
Chemical feed connection with diffuser tube (No valves supplied)	1	1"	TBD
Mount burner and controls	1	Inc.	VEO
Electrical test	1	Inc.	VEO
FGR Piping	1	Inc.	VEO

Both boilers are ready for immediate shipment and they are located at the factory in Collinsville, OK.

Boilers will also carry a one year manufactures warranty.

Attachment O

Monitoring/Recordkeeping/Reporting/Testing Plans

Attachment O

Monitoring, Recordkeeping, Reporting, and Testing

Monitoring, recordkeeping, and reporting is the same as in current permit for the existing boilers and generators with the addition of requirements under 40 CFR 60, Subpart Dc and 40 CFR 63, Subpart JJJJJJ for the boilers and 40 CFR 60, Subpart IIII for the generator. Emissions testing is not being proposed. Further discussion is provided in Attachment D.

Attachment P

Public Notice

AIR QUALITY PERMIT NOTICE
Notice of Application

Notice is given that Charleston Area Medical Center Memorial Hospital has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a Class II Administrative Update for the installation of one diesel powered emergency generator and two dual-fuel boilers located on 3200 MacCorkle Avenue, SE in Charleston, Kanawha County, West Virginia. The latitude and longitude coordinates are: 38.329825 N and 81.602891 W.

The applicant estimates the increased potential to discharge the following Regulated Air Pollutants will be:

Pollutant	Current	Proposed	Difference
CO	42.71	45.64	2.93
NO_x	62.64	80.96	18.32
PM_{10}	6.61	5.80	-0.81
SO_2	0.85	0.33	-0.52
VOC	2.99	3.28	0.30

Startup of operation is planned to begin on or about the 1st day of September, 2015 Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice.

Any questions regarding this permit application should be directed to the DAQ at (304) 926-0499, extension 1250, during normal business hours.
Dated this the 30thday of July, 2015.

By: Charleston Area Medical Center Memorial Hospital
Dr. Glenn Crotty, Jr
Executive Vice President & Chief Operating Officer
501 Morris Street
Charleston, West Virginia 25301

Attachment Q

Business Confidential Claims

Attachment Q
Business Confidential Claims

This Class II Administrative Update does not contain any information considered "Confidential Business Information" per 45CSR31.

Attachment R

Authority Forms

Attachment R
Authority Forms

This Class II Administrative Update is signed by the “Responsible Official”.
Therefore no authority forms are included.

Application Fee