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From: Rick McCormick
322 East Front St., Suite 200
Boise ID 83702

RECEIVED
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Attn: Mr. Bill Rogers

Date: May 18, 2012

Re: PTC Modification
Hospital Boiler and New Emergency Generators
Mountain Home AFB
Mountain Home, ID

We Are Sending You:			**Method of shipment: Hand Delivery**	
X	Attached		Under separate cover via	
	Shop Drawings	X	Documents	Tracings
	Prints		Specifications	Catalogs
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Quantity	Description
1	PTC Modification
	PTC application fee was paid on 5/17/12 –receipt attached with PTC application

If the material received is not as listed, please notify us at once.

cc:

Receipt

Print this page or check your email for a receipt.

Payment Complete

Idaho.gov State of ID will appear on your statement for this transaction. Thank you for your business.

Order Number: PP3ID997715SID4513722-997715
Order Date: Thu May 17 14:57:24 MDT 2012
Payment Method: Visa xxxxxxxxxxx8748
Cost: $1,030.00

Order

Item/Service	Qty	Price	Total
PTC Application Fee	1	$1,000.00	$1,000.00

Subtotal	$1,000.00
Sales Tax	$0.00
Shipping	$0.00
Convenience Fee*	$30.00
Total	$1,030.00

Contact information

Bill To: Rick Mccormick
322 East Front Street
Suite 200
Boise, ID 83702
Phone: (208) 345-5310
Email: rick.mccormick@ch2m.com

Billing questions

Contact Idaho.gov by phone 208-332-0102 or toll-free at 1-877-443-3468.

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RECEIVED
MAY 18 2012
DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE A.Q. PROGRAM

Permit-to-Construct Modification Application

U.S. Air Force Mountain Home Air Force Base

Hospital Boilers and New Emergency Generators

Prepared for

U.S. Air Force Mountain Home AFB

Submitted to

Idaho Department of Environmental Quality

April 2012

CH2MHILL

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1.0 Introduction

On behalf of Mountain Home Air Force Base (MHAFB), CH2M HILL has prepared an air quality Permit-to-Construct (PTC) application modification to PTC No. P-060068 issued by the Idaho Department of Environmental Quality (IDEQ) on May 24, 2007. The procedures and requirements for issuance of a modified PTC were followed in accordance with Idaho Administrative Procedures Act (IDAPA) 58.01.01.200. In addition, MHAFB is requesting to incorporate the relevant terms and conditions from this PTC modification into the Final Tier I (Title V) Operating Permit per IDAPA 58.01.01.209.05.a.vi.

This permit modification will only impact the hospital boilers and generators. No other emission sources currently permitted and included in PTC No. P-060068 will be affected. Specifically, MHAFB proposes to operate the existing four permitted dual-fired hospital boilers on natural gas exclusively and eliminate the use of diesel fuel as a backup option. In addition, MHAFB proposes to replace the three existing 750 kW diesel emergency generators with two new 800 kW diesel emergency generators.

An application fee of $1,000.00 has been included with the application submittal in accordance with IDAPA 58.01.01.226.

This PTC application includes a process description, plot plan, process flow diagram, emission estimates, and a regulatory review. No ambient air dispersion modeling was performed. Idaho PTC application forms are provided in Appendix A.

2.0 Process Description

The hospital is currently permitted to operate four dual-fired boilers and three emergency diesel generators. The currently permitted emission units are described as:

- 3 Kewanee Boilers
  Model LSW-125-GO
  5.231 MMBtu maximum firing rate
  Distillate fuel or natural gas fired
  Provide heat and other heat needs for the hospital
- 1 Hurst Boiler
  Model C1-GO-12
  1.05 MMBtu maximum firing rate
  Distillate fuel or natural gas fired
  Provide heat and other heat needs for the hospital

- 3 Emergency generators
  Caterpillar Model SR4
  750 kW each
  Distillate fuel oil (0.5 % sulfur by weight)
  Provide emergency backup power to the hospital

2.1 Permit Revisions

2.1.1 Hospital Boilers

MHAFB proposes removing distillate fuel use from all four hospital boilers and burn natural gas exclusively. Therefore, MHAFB would like to make the following changes to the existing PTC, Section 2 – Hospital Boilers:

- Global change – remove any reference to distillate fuel in all referenced permit conditions.
- Remove Permit Condition 2.3, 2.7, 2.8, 2.10

2.1.2 Hospital Emergency Generators

MHAFB is proposing to replace the three existing 750 kW emergency diesel generators with two new 800 kW emergency diesel generators. The specifications for the new emergency diesel generators include:

- 2 New Emergency Generators
  Cummins Model DQFAC
  818 kW each
  EPA Certified Tier II
  Maximum fuel consumption of 150 gallons per hour (100-percent load)
  Ultra low sulfur diesel fuel (0.0015 % sulfur by weight)

MHAFB would like to make the following changes to the existing PTC, Section 3 – Hospital Emergency Generators:

- Global change – remove any reference from three to two emergency generator engines in all referenced permit conditions.
- Modify Permit Condition 3.3, 3.6, and 3.9

A copy of the current air quality PTC for the Hospital boilers and generators is included in Appendix B.

3.0 Scaled Plot Plan

Mountain Home AFB is located in Elmore County, Idaho approximately 10 miles southwest from the City of Mountain Home. The site location map is included in Figure 1-1. MHAFB maintains a military hospital (Building 6000) located in the northeast section of the base near the main gate. A scaled plot plan showing the emission sources for the hospital is included in Figure 1-2.

4.0 Process Flow Diagram

A process flow diagram is not applicable to this PTC modification.

5.0 Potential to Emit Emission Estimates/ Ambient Impact Analysis

Potential to emit (PTE) emission estimates were calculated based on emission factors derived from the United States Environmental Protection Agency (USEPA) *Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition, Volume 1: Stationary Point and Area Sources, Chapter 1 – External Combustion Sources and Chapter 3 – Stationary External Combustion Sources.*[1] Emission calculations for the hospital boilers and generators are provided in Appendix C. Manufacturer data sheets for the Cummins emergency generators are provided in Appendix D.

The following limitations were used to calculate the potential to emit emissions for the new hospital generators:

1. Potential to Emit calculations for each emergency generator engine were based on 500 hours per year.
2. Each emergency generator engine will be limited to 100 hours per year for maintenance and testing.

Toxic air pollutants emission calculations were not evaluated for the boilers since the natural gas emissions will remain unchanged. However, the combined hourly and annual toxic air pollutants for the removal of the three existing emergency generators were compared against the two new emergency generators. The results indicate a net reduction in the hourly and annual emissions for the emergency generators. Therefore, no toxic air pollutant modeling was required. Refer to the emission calculations in Appendix C.

A comparison of the hospital total net change in potential emission rates against the Level I modeling pound per hour thresholds were not exceeded for criteria pollutants (CO, NOx, SO_2, PM_{10}, $PM_{2.5}$). Therefore, ambient air dispersion modeling was not required for this permit modification. Refer to the emission calculations in Appendix C.

[1] Obtained from EPA website in April 2012, latest version.

6.0 Facility Classification

MHAFB is classified as a major source for NOx emissions as potential to emit for the facility-wide sources are greater than 100 tons per year. MHAFB is not a Prevention of Significant Deterioration (PSD) major facility (250 tons per year or greater for any listed pollutant). The primary activity of the Base is national security, classified as SIC 9711. However, the Base contains a number of different activities that are separately classified (e.g., the Base hospital is classified as SIC 8062, *General medical and surgical hospitals*; the Army/Air Force Exchange Service gasoline service station is classified as SIC 5541, *Gasoline filling stations retail.*)

The facility is located in Elmore County which is designated as unclassifiable for all regulated criteria pollutants (i.e., $PM_{2.5}$, PM_{10}, CO, NO_x, SO_2, lead, and ozone).

7.0 Applicable Requirements

7.1 Federal Requirements

A regulatory analysis was performed for the MHAFB hospital boilers and emergency generators to determine the applicability of state and federal air quality regulations. The following sections address the applicable air quality regulatory compliance requirements for the hospital boiler and emergency generators. As detailed below, the source will comply with all applicable Idaho air quality regulations codified in IDAPA 58.01.01, as well as applicable EPA Code of Federal Regulations (CFR).

Federal Regulations

New Source Review and Prevention of Significant Deterioration Applicability—40 CFR Parts 51 and 52

In accordance with EPA and IDAPA 58.01.01.205 rules, the proposed facility will not be required to submit a construction permit application subject to the requirements of New Source Review (NSR) as it is not a major new source. The requirements of NSR vary, depending on whether the proposed facility will be located in a non-attainment or attainment area for NAAQS.

New Source Review for Non-Attainment Areas

Non-Attainment Area NSR is the portion of NSR that applies to areas that are not in attainment of NAAQS. Elmore County is classified as attainment or unclassifiable for all NAAQS. Therefore, Non-Attainment Area NSR is not required for the proposed facility.

New Source Review for Attainment or Unclassifiable Areas

Prevention of Significant Deterioration (PSD) is the portion of NSR that applies to pollutants that are in attainment of NAAQS, or are unclassifiable. Elmore County is classified as attainment or unclassifiable for the criteria pollutants NO_X, CO, SO_2, ozone, lead, PM_{10}, and $PM_{2.5}$. Therefore, new or modified air emission sources are potentially subject to PSD review for these pollutants, depending on the proposed facility's major source status and on the emission rates of NO_X, CO, SO_2, VOC, PM_{10}, and $PM_{2.5}$.

A PSD review is required if the proposed facility is a major PSD source. A source is considered to be major if:

- It is included in a list of 28 specific source categories and its potential to emit (PTE) any of the NSR-regulated pollutants exceeds 100 tons per year, or
- Its PTE exceeds 250 tons per year for any other source category.

The list of 28 specific source categories with the 100 tons per year threshold does not include a pre-treatment facility and is not a designated facility as defined in IDAPA 58.01.01.006.26 Therefore, the proposed source is not subject to a 100 tons per year major source threshold for PSD review.

The proposed facility could only be considered to be a PSD major source if it has a PTE greater than 250 tons per year of any criteria pollutant. The proposed facility will not have a PTE greater than 250 tons per year for NO_X, CO, VOC, PM_{10}, and $PM_{2.5}$ and therefore, will not be considered a major PSD source.

Greenhouse Gas Tailoring Rule

On May 13, 2010, the U.S. Environmental Protection Agency (EPA) issued a final rule that establishes an approach to addressing greenhouse gas emissions from stationary sources under the Clean Air Act (CAA) permitting programs. This final rule sets thresholds for GHG emissions that define when permits under the NSR, PSD, and Title V Operating Permit programs are required for new and existing facilities. This rule "tailors" the requirements of these CAA permitting programs to limit which facilities will be required to obtain PSD and Title V permits.

Beginning July 1, 2011, the PSD major source threshold of 100,000 tons per year CO2e became effective. A new source with potential GHG emissions above 100,000 tons per year CO2e is now subject to PSD permitting requirements for GHGs, regardless of whether PSD is also triggered for non-GHG pollutants. Modifications to existing major sources (defined relative to the new 100,000 tons per year threshold for CO2e or the 100/250 tons per year threshold for traditional NSR regulated pollutants) that result in an increase of GHG emissions by 75,000 tons per year CO2e or more are subject to PSD permitting requirements for GHGs. Therefore, beginning July 1, 2011, PSD for GHG pollutants can be triggered regardless of whether PSD is also triggered for non-GHG pollutants. In addition, beginning July 1, 2011, facilities with potential CO2e emissions of 100,000 tons per year or more are subject to Title V permitting requirements. MHAFB is currently subject to Title V permitting by virtue of potential to emit for NO_x greater than 100 tons per year. Therefore, Title V permitting has been predetermined for regulated criteria pollutants.

For determining PSD (or Title V) major source or major modification applicability, the quantity of GHGs emitted must not only equal or exceed 100,000 tons per year (75,000 tons per year for modifications) thresholds on a CO2e basis, but the sum of emissions of each GHG pollutant not adjusted for its global warming potential must also exceed the applicable threshold for non-GHG regulated pollutants (i.e., 100 tons per year for Title V or 100 tons per year/250 tons per year for PSD, depending on whether the source is on the list of 28 PSD categories or a designated facility as defined in IDAPA 58.01.01.006.26v).

As the total facility CO2e is 9,241 tons per year, the facility is not subject to PSD with respect to the GHG Tailoring Rule at this time.

National Emission Standards for Hazardous Air Pollutants - 40 CFR Part 63

Section 112 of the Clean Air Act (CAA) Amendments relates to the release of air toxic contaminants. The requirements of CAA Section 112(g) or (j) are not applicable because the facility is not a major source of HAPs (40 CFR 63.40(b)). Part 63 National Emission Standards for Hazardous Air Pollutants (NESHAPS) apply to both major sources of HAPs, defined as PTE equal to or greater than 10 tons per year for any single HAP or PTE equal to or greater than 25 tons per year for total HAP, and area sources of HAPs as defined as any stationary source of HAPs that is not a major source. As HAP emissions are below major source thresholds, the MHAFB hospital is not a major source of HAPs. However, the facility is an area source of HAPs.

National Emission Standard for Hazardous Air Pollutants - 40 CFR Part 63 Subpart JJJJJJ (NESHAP for Industrial, Commercial, and Institutional Boilers Area Sources)

The four existing natural gas-fired boilers at the MHAFB hospital will combust natural gas exclusively. Therefore, the emission units meet the definition of a gas-fired boiler. As such the four existing boilers are not subject to 40 CFR Part 63 Subpart JJJJJJ.

New Source Performance Standards - 40 CFR Part 60 Subpart Dc (Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units)

The four existing natural gas-fired boilers are not subject to 40 CFR Part 60 Subpart Dc, as each boiler has a maximum rated heat input capacity of less than 10 MMBTU/hour.

40 CFR Part 60 Subpart IIII- Standards of Performance for Stationary Compressor Ignition Internal Combustion Engines (CI ICE).

New Source Performance Standards (NSPS) Subpart IIII applies to stationary compression ignition internal combustion engines (CI ICE) that are new, or modified such that they qualify as new sources after July 11, 2005. The rule covers stationary engines that are used in emergencies as well as for remote, auxiliary non-emergency purposes. The applicability provisions of this Subpart will apply to both of the 818 kW Cummins engine generators manufactured in 2011 and installed in 2012 for emergency use. The applicability analysis is detailed in Appendix E.

7.2 State of Idaho Requirements

The following requirements apply under the IDAPA 58.01.01, *Rules for the Control of Air Pollution in Idaho.*

IDAPA 58.01.01.130
STARTUP, SHUTDOWN, SCHEDULED MAINTENANCE, SAFETY MEASURES, UPSET AND BREAKDOWN.

If an excess emission event occurs during startup, shutdown, scheduled maintenance, safety measures, upset, or breakdown, MHAFB will comply with IDAPA 58.01.01.130 through 58.01.01.136 by planning, identifying, operating, correcting, and notifying IDEQ of the event and as otherwise required by this section.

IDAPA 58.01.01.157
TEST METHODS AND PROCEDURES

If an emission test is required, MHAFB will adhere to procedures outlined in IDAPA 58.01.01.157.

IDAPA 58.01.01.161
TOXIC SUBSTANCES

"Any contaminant which is by its nature toxic to human or animal life or vegetation shall not be emitted in such quantities or concentrations as to alone, or in combination with other contaminants, injure or unreasonably affect human or animal life or vegetation."

Toxic emissions have been reviewed for this project and are in compliance with this requirement. See emission estimates in Appendix C.

IDAPA 58.01.01.200
PROCEDURES AND REQUIREMENTS FOR PERMITS TO CONSTRUCT

MHAFB will follow the procedures and requirements outlined under IDAPA 58.01.01.200 for obtaining a Permit to Construct.

IDAPA 58.01.01.209
PROCEDURES FOR ISSUING PERMITS

MHAFB is requesting to incorporate the relevant terms and conditions from this PTC modification into the Final Tier I (Title V) Operating Permit per IDAPA 58.01.01.209.05.a.vi.

IDAPA 58.01.01.210
DEMONSTRATION OF PRECONSTRUCTION COMPLIANCE WITH TOXIC STANDARDS

"In accordance with Subsection 203.03, the applicant shall demonstrate preconstruction compliance with Section 161 to the satisfaction of the Department. The accuracy, completeness, execution, and results of the demonstration are all subject to review and approval by the Department."

See emission estimates in Appendix C.

IDAPA 58.01.01.578
DESIGNATION OF ATTAINMENT, UNCLASSIFIABLE, AND NONATTAINMENT AREAS

The proposed site for the stationary sources is in an attainment area.

IDAPA 58.01.01.590
NEW SOURCE PERFORMANCE STANDARDS

The new hospital emergency generators are subject to NSPS 40 CFR Part 60 Subpart IIII - Standards of Performance for Stationary Compressor Ignition Internal Combustion Engines (CI ICE). – See Federal Requirement as noted above.

IDAPA 58.01.01.591

NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS

The MHAFB hospital facility is an area source of HAPs. – See Federal Requirement as noted above.

IDAPA 58.01.01.625
VISIBLE EMISSIONS

"A person shall not discharge any air pollutant into the atmosphere from any point of emission for a period or periods aggregating more than three (3) minutes in any sixty (60) minute period which is greater than twenty percent (20%) opacity as determined by this section." The MHAFB hospital shall demonstrate compliance with this standard by operating the equipment as described in this application, and maintaining the emissions control equipment according to manufacturers' recommendations or site-specific good operating practices.

IDAPA 58.01.01.775
RULES FOR CONTROL OF ODORS

MHAFB will follow the guidelines set under IDAPA 58.01.01.775 through IDAPA 58.01.01.776 to control odorous emissions from all sources for which no gaseous emission control rules apply.

IDAPA 58.01.01.776
GENERAL RULES

IDAPA 58.01.01.776.01 General Restrictions

"No person shall allow, suffer, cause or permit the emission of odorous gases, liquids or solids into the atmosphere in such quantities as to cause air pollution."

MHAFB will comply with odor requirements if it is determined that the HMA plant is the source of odor in quantities that constitute pollution.

Figures

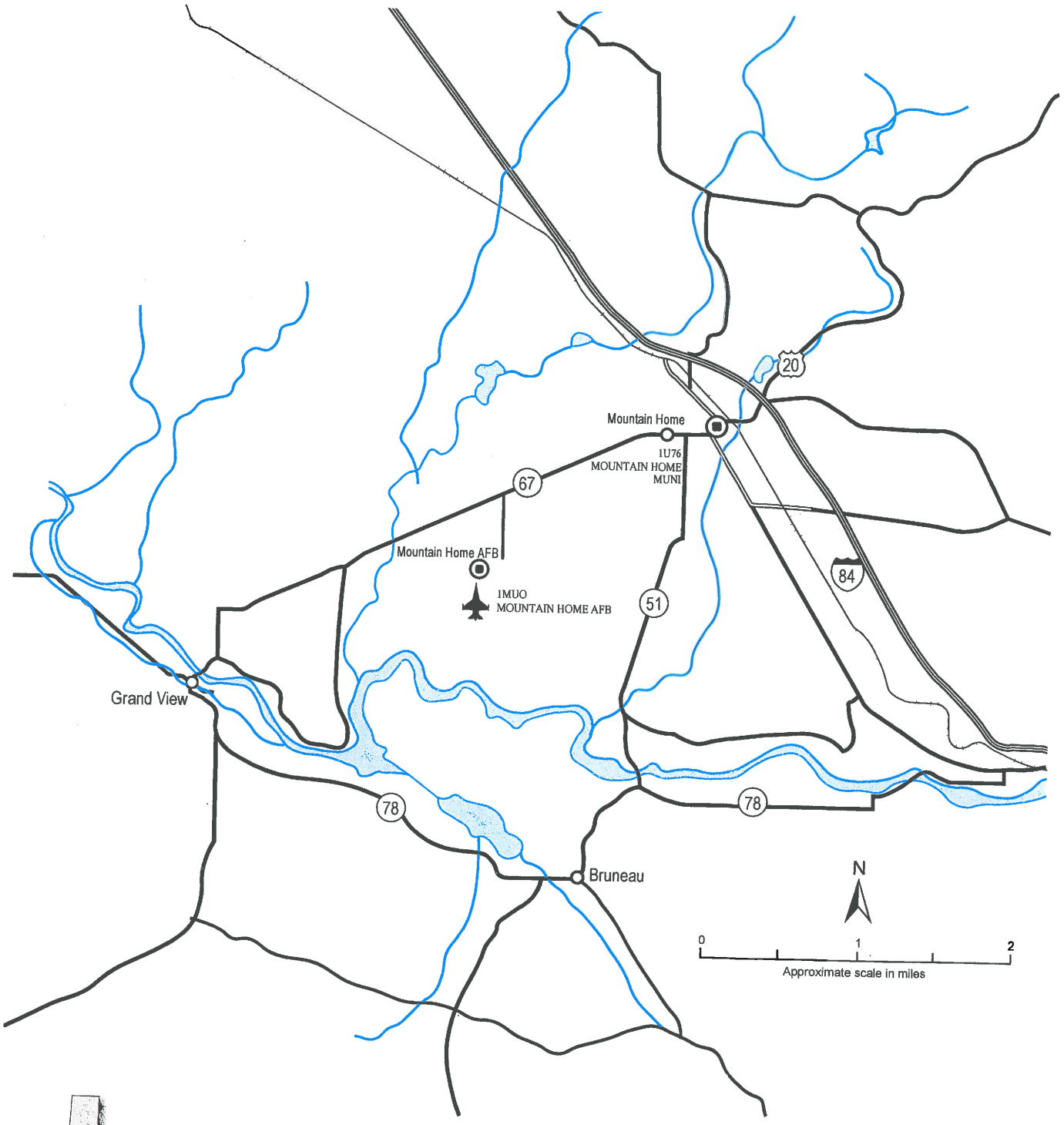

FIGURE 1-1
SITE LOCATION MAP
Hospital Permit-to-Construct 2012
Mountain Home AFB

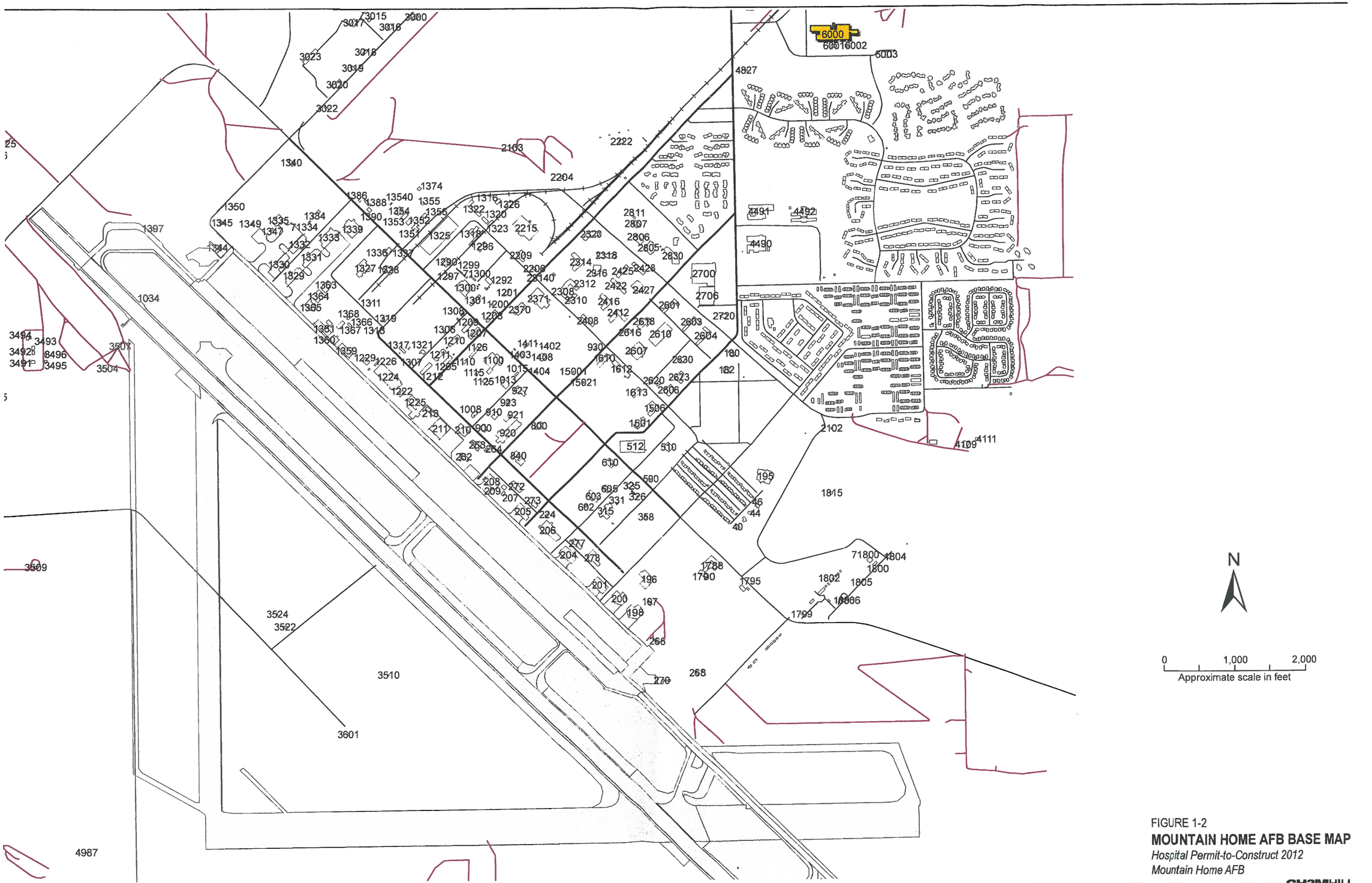

FIGURE 1-2

MOUNTAIN HOME AFB BASE MAP

Hospital Permit-to-Construct 2012
Mountain Home AFB

ES041112182957BOI

CH2MHILL.

Appendix A

IDEQ PTC Application Forms

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 1-877-5PERMIT

Cover Sheet for Air Permit Application – Permit to Construct **Form CSPTC**

Please see instructions on page 2 before filling out the form.

COMPANY NAME, FACILITY NAME, AND FACILITY ID NUMBER

1. Company Name	United States Air Force, Mountain Home AFB		
2. Facility Name	Mountain Home AFB Hospital, Building 6000	3. Facility ID No.	039-00001
4. Brief Project Description - One sentence or less	Hospital boilers to operate on NG exclusively and 2 emergency generator replacements		

PERMIT APPLICATION TYPE

5. ☐ New Source ☒ New Source at Existing Facility ☐ PTC for a Tier I Source Processed Pursuant to IDAPA 58.01.01.209.05.c
☐ Unpermitted Existing Source ☐ Facility Emissions Cap ☒ Modify Existing Source: Permit No.: P-060068 Date Issued: 5/24/2007
☐ Required by Enforcement Action: Case No.: ____

6. ☒ Minor PTC ☐ Major PTC

FORMS INCLUDED

Included	N/A	Forms		DEQ Verify
☒	☐	Form CSPTC – Cover Sheet		☐
☒	☐	Form GI – Facility Information		☐
☐	☒	Form EU0 – Emissions Units General		☐
☒	☐	Form EU1– Industrial Engine Information	Please specify number of EU1s attached: 2	☐
☐	☒	Form EU2– Nonmetallic Mineral Processing Plants	Please specify number of EU2s attached: ____	☐
☐	☒	Form EU3– Spray Paint Booth Information	Please specify number of EU3s attached: ____	☐
☐	☒	Form EU4– Cooling Tower Information	Please specify number of EU3s attached: ____	☐
☐	☒	Form EU5 – Boiler Information	Please specify number of EU4s attached: ____	☐
☐	☒	Form CBP– Concrete Batch Plant	Please specify number of CBPs attached: ____	☐
☐	☒	Form HMAP – Hot Mix Asphalt Plant	Please specify number of HMAPs attached: ____	☐
☐	☒	PERF – Portable Equipment Relocation Form		☐
☐	☒	Form AO – Afterburner/Oxidizer		☐
☐	☒	Form CA – Carbon Adsorber		☐
☐	☒	Form CYS – Cyclone Separator		☐
☐	☒	Form ESP – Electrostatic Precipitator		☐
☐	☒	Form BCE– Baghouses Control Equipment		☐
☐	☒	Form SCE– Scrubbers Control Equipment		☐
☐	☒	Form VSCE – Venturi Scrubber Control Equipment		☐
☐	☒	Form CAM – Compliance Assurance Monitoring		☐
☒	☐	Forms EI— Emissions Inventory		☐
☒	☐	PP – Plot Plan		☐
☐	☒	Forms MI1 – MI4 – Modeling	(Excel workbook, all 4 worksheets)	☐
☒	☐	Form FRA – Federal Regulation Applicability		☐

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 1-877-5PERMIT

General Information **Form GI**
Revision 7
2/18/10

Please see instructions on page 2 before filling out the form.

All information is required. If information is missing, the application will not be processed.

IDENTIFICATION

1. Company Name	2. Facility Name
United States Air Force, Mountain Home AFB	Mountain Home AFB Hospital,Building 6000

3. Brief Project Description	Hospital boilers to operate on NG exclusively and 2 emergency generator replacements

FACILITY INFORMATION

4. Primary Facility Permit Contact Person/Title	BRUCE M. SMITH		Colonel, USAF	
5. Telephone Number and Email Address	Bruce.Smith@mountainhome.af.mil		208-828-2366	
6. Alternate Facility Contact Person/Title	Tammy Phillips		Air Quality Manager	
7. Telephone Number and Email Address	208-828-8003		Tammy.Phillips@mountainhome.af.mil	
8. Address to Which the Permit Should be Sent	366 Gunfighter Avenue, Suite 331			
9. City/County/State/Zip Code	Mountain Home AFB	Elmore	Idaho	83648-5442
10. Equipment Location Address (if different than the mailing address above)	90 Hope Dr. Building 6000			
11. City/County/State/Zip Code	Mountain Home AFB	Elmore	Idaho	83648
12. Is the Equipment Portable?	☐ Yes ☒ No			
13. SIC Code(s) and NAICS Code	Primary SIC: 9711	Secondary SIC:		NAICS: 928110
14. Brief Business Description and Principal Product	US department of defense military installation			
15. Indentify any adjacent or contiguous facility that this company owns and/or operates	Saylor Creek and Juniper Butte bombing ranges			
16. Specify the reason for the application	☒ Permit to Construct (PTC) For Tier I permitted facilities only: If you are applying for a PTC then you must also specify how the PTC will be incorporated into the Tier I permit. ☐ Incorporate the PTC at the time of the Tier I renewal ☒ Co-process the Tier I modification and PTC ☐ Administratively amend the Tier I permit to incorporate the PTC upon your request (IDAPA 58.01.01.209.05.a, b, or c) ☐ Tier I Permit ☐ Tier II Permit ☐ Tier II/Permit to Construct			

CERTIFICATION

In accordance with IDAPA 58.01.01.123 (Rules for the Control of Air Pollution in Idaho), I certify based on information and belief formed after reasonable inquiry, the statements and information in the document(s) are true, accurate, and complete.

17. Responsible Official's Name/Title	BRUCE M. SMITH		Colonel, USAF
18. Responsible Official Address	366 Gunfighter Avenue, Suite 331		
19. Responsible Official Telephone Number	208-828-2366		
20. Responsible Official Email Address	Bruce.Smith@mountainhome.af.mil		
21. Responsible Official's Signature	Bruce M. Smith	Date:	14 Mar 12

22. ☒ Check here to indicate that you would like to review the draft permit prior to final issuance.

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 1-877-5PERMIT

Emissions Units - Industrial Engine Information **Form EU1**
Revision 8
1/15/10

Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name:	2. Facility Name:	
US Department of Defense Mountain Home AFB	Mountain Home AFB Hospital, Building 6000	
3 Brief Project Description:	Hospital boilers to operate on NG exclusively and 2 emergency generator replacements	

ENGINE (EMISSION UNIT) DESCRIPTION AND SPECIFICATIONS

4. Type of Unit:	☒ New Unit ☐ Unpermitted Existing Unit ☒ Modification to a Unit with Permit # P-060068 Date Issued: 5/24/2007		
5. Engine Displacement:	2.54 (liters per cylinder)	6. Ignition Type:	☒ Compression ☐ Spark
7. Use	☒ Emergency ☐ Non-Emergency		
8. Engine ID Number:	9. Maximum Rated Engine Power:		
818 kW Gen 01 (1097 HP)	_____ Brake Horsepower (bhp)		
10. Construction Date:	11. Manufacturer:	12. Model:	13. Model Year:
To be installed in 2012	Cummins	DQFAC	2011
14. Date of Modification (if applicable):	15. Serial Number (if available):	16. Control Device (if any):	

FUEL DESCRIPTION AND SPECIFICATIONS

17. Fuel Type	☒ Diesel Fuel (#) (gal/hr)	☐ Gasoline Fuel (gal/hr)	☐ Natural Gas (cf/hr)	☐ Other Fuels (unit:)
18. Full Load Consumption Rate	57.7			
19. Actual Consumption Rate	29.4 (50% load)			
20. Sulfur Content wt%	0.0015	N/A	N/A	

OPERATING LIMITS & SCHEDULE

21. Imposed Operating Limits (hours/year, or gallons fuel/year, etc.):

22. Operating Schedule (hours/day, months/year, etc.):

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
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Emissions Units - Industrial Engine Information **Form EU1**
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7. Use	☒ Emergency ☐ Non-Emergency		
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818 kW Gen 02 (1097 HP)	_____ Brake Horsepower (bhp)		
10. Construction Date:	11. Manufacturer:	12. Model:	13. Model Year:
To be installed in 2012	Cummins	DQFAC	2011
14. Date of Modification (if applicable):	15. Serial Number (if available):	16. Control Device (if any):	

FUEL DESCRIPTION AND SPECIFICATIONS

17. Fuel Type	☒ Diesel Fuel (#) (gal/hr)	☐ Gasoline Fuel (gal/hr)	☐ Natural Gas (cf/hr)	☐ Other Fuels (unit:)
18. Full Load Consumption Rate	57.7			
19. Actual Consumption Rate	29.4 (50% load)			
20. Sulfur Content wt%	0.0015	N/A	N/A	

OPERATING LIMITS & SCHEDULE

21. Imposed Operating Limits (hours/year, or gallons fuel/year, etc.):

22. Operating Schedule (hours/day, months/year, etc.):

Instructions for Form EU1

1 – 3. Provide the same company name, facility name (if different), and brief project description as on Form CS. This is useful in case any pages of the application are separated. This industrial engine may be subject to the *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines* (40 CFR 60, Subpart IIII). Follow the link for applicability and compliance information. If Subpart IIII applies to this engine, complete and include Form FRA.

Engine Description and Specification:

4. Indicate whether the engine is new, existing but unpermitted, or being modified.

5. Indicate the engine displacement in liters per cylinder.

6. Indicate the ignition type as either compression or spark.

7. Indicate whether the primary use of the engine is emergency or non-emergency.

8. Provide the identification (ID) number of the engine emission unit (EU). Each engine in the application must have its own number. If engines included in this permit application are not identical in make and model, fill out a separate EU1 form for each engine. If the engines are identical, attach a separate sheet labeled EU1A listing them by ID number and date of construction or modification. The ID number can be any unique identifier you choose; however, this ID number should be unique to this EU and should be used consistently throughout this application and all other air quality permit applications (e.g., operating permit application) to identify this EU.

9. The maximum rated horsepower should be read from the engine's nameplate or from the manufacturer's user's manual or similar literature.

10. The date of construction of the engine is the date, month, and year in which construction or modification begins as defined in EU0 Form Instruction item 11.

11. Provide the name of the manufacturer of the engine.

12. Provide the model number of the engine. This number should be available from the nameplate of the engine.

13. Provide the model year of the engine.

14. If the engine has been or will be modified, give the date, month, and year of the most recent or future modification.

15. Provide the manufacturer's serial number for this engine, if available.

16. Provide the control device name and number if a control device is attached to this engine. The name and number of the control device should be consistent with control equipment forms and throughout the application.

Fuel Description and Specifications:

17. Indicate the fuel type used by the engine. If diesel fuel is used, you need to indicate the ranking number (e.g., diesel fuel No. 2). If the engine is a dual-fuel engine, please check the appropriate fuel type boxes.

18. The full-load consumption rate is the fuel consumption rate at the engine's rated capacity.

19. The actual consumption rate is the fuel consumption rate (usually daily average) under typical operational conditions.

20. Provide the weight percentage of the sulfur content in the diesel oil.

Operation Limits:

21. If any, indicate the operating limits you imposed to this engine in the units of operating hours per year, or gallons fuel per hour, per year, etc.

22. Indicate your operation schedule for the projected maximum operation of the engine.

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline - 1-877-5PERMIT

PERMIT TO CONSTRUCT APPLICATION

Revision 3
4/5/2007

Please see instructions on page 2 before filling out the form.

Company Name:	**U.S. Air Force Mountain Home Air Force Base**
Facility Name:	Hospital
Facility ID No.:	039-00001
Brief Project Description:	Hospital boilers to operate on NG exclusively and 2 emergency generator replacements

SUMMARY OF FACILITY WIDE EMISSION RATES FOR CRITERIA POLLUTANTS - POINT SOURCES

1.	2.	3.											
		PM_{10}		SO_2		NO_x		CO		VOC		Lead	
Emissions units	**Stack ID**	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Point Source(s)													
Boilers 1-3 (combined stack)	Boilers 1-3	0.12	0.51	0.01	0.04	1.54	6.74	1.29	5.66	0.08	0.37		
Boiler 4	Boiler 4	0.00	0.00	0.00	0.00	0.01	0.03	0.01	0.03	0.00	0.00		
Emerg Generator 1(replacement)	Gen 1	0.36	0.09	0.01	0.00	11.61	2.90	6.29	1.57	0.74	0.18		
Emerg Generator 2(replacement)	Gen 2	0.36	0.09	0.01	0.00	11.61	2.90	6.29	1.57	0.74	0.18		
(insert more rows as needed)													
Total		0.84	0.69	0.03	0.05	24.77	12.57	13.88	8.83	1.56	0.73		

	DEQ AIR QUALITY PROGRAM 1410 N. Hilton, Boise, ID 83706 For assistance, call the **Air Permit Hotline - 1-877-5PERMIT**	**PERMIT TO CONSTRUCT APPLICATION** Revision 3 4/5/2007

Please see instructions on page 2 before filling out the form.

Company Name:	**U.S. Air Force Mountain Home Air Force Base**
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Brief Project Description:	Hospital boilers to operate on NG exclusively and 2 emergency generator replacements

SUMMARY OF FACILITY WIDE EMISSION RATES FOR CRITERIA POLLUTANTS - POINT SOURCES

1.	2.	3.											
		PM_{10}		SO_2		NO_x		CO		VOC		Lead	
Emissions units	Stack ID	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Point Source(s)													

Instructions for Form EI-CP1

This form is designed to provide the permit writer and air quality modeler with a summary of the criteria pollutant emissions of each emission unit/point located at the facility. This information may be used by the IDEQ to perform an air quality analysis or to review an air quality analysis submitted with the permit application or requested by the IDEQ.

Please fill in the same company name, facility name, facility ID number, and brief project description as on form CS in the boxes provided. This is useful in case any pages of the application get separated.

1. Provide the name of all emission units at the facility. This name must match names on other submittals to IDEQ and within this application.

2. Provide the identification number for the stack which the emission unit exits.

3. Provide the emission rate in pounds per hour and tons per year for all criteria pollutants emitted by this point source. In this form, emission rates for a point source are the maximum allowable emissions for both short term (pounds per hour) and long term (tons per year). These emission rates are its permitted limits (if any). Otherwise, potential to emit should be shown. Potential to emit is defined as uncontrolled emissions at maximum design or achievable capacity (whichever is higher) and year-round continuous operation (8760 hours per year) if there are no federally enforceable permit limits on the emission point. If the emission point has or will have control equipment or some other proposed permit limitation such as hours of operation or material usage, the control efficiency or proposed permit limit(s) may be used in calculating potential to emit.

NOTE: Attach a separate sheet of paper, or electronic file, to provide additional documentation on the development of the emission rates. Documentation can include emissions factors, throughput, and example calculations.

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline - 1-877-5PERMIT

PERMIT TO CONSTRUCT APPLICATION

Revision 3
4/5/2007

Please see instructions on page 2 before filling out the form.

Company Name:	**U.S. Air Force Mountain Home Air Force Base**
Facility Name:	Hospital
Facility ID No.:	039-00001
Brief Project Description:	Hospital boilers to operate on NG exclusively and 2 emergency generator replacements

SUMMARY OF EMISSIONS INCREASE (PROPOSED PTE - PREVIOUSLY MODELED PTE) - POINT SOURCES

1.	2.	3.											
		PM_{10}		SO_2		NO_x		CO		VOC		Lead	
Emissions units	**Stack ID**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**
Point Source(s)													
Generator net difference		(0.48)	(0.12)	(12.18)	(3.05)	(49.20)	(12.30)	(4.02)	(1.00)	(0.65)	(0.16)		
name of the emissions unit5													
name of the emissions unit6													
name of the emissions unit7													
name of the emissions unit8													
name of the emissions unit9													
name of the emissions unit10													
name of the emissions unit11													
name of the emissions unit12													
name of the emissions unit13													
name of the emissions unit14													
name of the emissions unit15													
name of the emissions unit16													
name of the emissions unit17													
name of the emissions unit18													
name of the emissions unit19													
name of the emissions unit20													
name of the emissions unit21													
(insert more rows as needed)													
Total													

	DEQ AIR QUALITY PROGRAM 1410 N. Hilton, Boise, ID 83706 For assistance, call the **Air Permit Hotline - 1-877-5PERMIT**	**PERMIT TO CONSTRUCT APPLICATION** Revision 3 4/5/2007

Please see instructions on page 2 before filling out the form.

Company Name:	**U.S. Air Force Mountain Home Air Force Base**
Facility Name:	Hospital
Facility ID No.:	039-00001
Brief Project Description:	Hospital boilers to operate on NG exclusively and 2 emergency generator replacements

SUMMARY OF EMISSIONS INCREASE (PROPOSED PTE - PREVIOUSLY MODELED PTE) - POINT SOURCES

1.	2.	3.											
		PM_{10}		SO_2		NO_x		CO		VOC		Lead	
Emissions units	Stack ID	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Point Source(s)													

Instructions for Form EI-CP3

This form is designed to provide the permit writer and air quality modeler with a summary of the change in criteria pollutant emissions of each emission unit/point associated with this permit application. This information may be used by the IDEQ to perform an air quality analysis or to review an air quality analysis submitted with the permit application or requested by the IDEQ.

Please fill in the same company name, facility name, facility ID number, and brief project description as on form CS in the boxes provided. This is useful in case any pages of the application get separated.

1. Provide the name of the emission unit. This name should match names on other submittals to IDEQ and within this application.

2. Provide the identification number for the stack which the emission unit exits.

3. Provide the increase in emissions in pounds per hour and tons per year for all criteria pollutants emitted by this emission unit. In this form, increase in emissions for an emission unit are the proposed PTE - Previously modeled PTE. If the emission point has or will have control equipment or some other proposed permit limitation such as hours of operation or material usage, then, the control efficiency or proposed permit limit(s) may be used in calculating proposed potential to emit.

NOTE: Attach a separate sheet of paper, or electronic file, to provide additional documentation on the development of the emission rates. Documentation can include emissions factors, throughput, and example calculations.

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 1-877-5PERMIT

AIR PERMIT APPLICATION

Revision 6
10/7/09

For each box in the table below, CTRL+click on the blue underlined text for instructions and information.

IDENTIFICATION	
1. Company Name: United States Air Force, Mountain Home AFB	2. Facility Name: Mountain Home AFB Hospital, Building 6000
3. Brief Project Description:	Hospital boilers to operate on NG exclusively and 2 emergency generator replacements

APPLICABILITY DETERMINATION	
4. List applicable subparts of the New Source Performance Standards (NSPS) (40 CFR part 60). Examples of NSPS affected emissions units include internal combustion engines, boilers, turbines, etc. The applicant must thoroughly review the list of affected emissions units.	List of applicable subpart(s): Supart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines ☐ Not Applicable
5. List applicable subpart(s) of the National Emission Standards for Hazardous Air Pollutants (NESHAP) found in 40 CFR part 61 and 40 CFR part 63. Examples of affected emission units include solvent cleaning operations, industrial cooling towers, paint stripping and miscellaneous surface coating. EPA has a web page dedicated to NESHAP that should be useful to applicants.	List of applicable subpart(s): ☐ Not Applicable
6. For each subpart identified above, conduct a complete a regulatory analysis using the instructions and referencing the example provided on the following pages. **Note** - Regulatory reviews must be submitted with sufficient detail so that DEQ can verify applicability and document in legal terms why the regulation applies. Regulatory reviews that are submitted with insufficient detail will be determined incomplete.	☒ A detailed regulatory review is provided (Follow instructions and example). ☐ DEQ has already been provided a detailed regulatory review. Give a reference to the document including the date.

IF YOU ARE UNSURE HOW TO ANSWER ANY OF THESE QUESTIONS, CALL THE AIR PERMIT HOTLINE AT 1-877-5PERMIT

It is emphasized that it is the applicant's responsibility to satisfy all technical and regulatory requirements, and that DEQ will help the applicant understand what those requirements are prior to the application being submitted but that DEQ will not perform the required technical or regulatory analysis on the applicant's behalf.

Appendix B

Air Quality PTC, P-060068

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

1410 North Hilton • Boise, Idaho 83706 • (208) 373-0502

C.L. "Butch" Otter, Governor
Toni Hardesty, Director

May 24, 2007

Certified Mail No. 7005 1160 0000 1550 9224

Anthony J. Rock
Mountain Home Air Force Base
366 Gunfighter Ave, Ste 331
Mountain Home, ID 83648-5442

RE: Facility ID No. 039-00001, Mountain Home Air Force Base, Mountain Home
Final Permit Letter

Dear Mr. Rock:

The Idaho Department of Environmental Quality (DEQ) is issuing Permit to Construct (PTC) No. P-060068 to Mountain Home Air Force Base, in accordance with IDAPA 58.01.01.200 through 228 (Rules for the Control of Air Pollution in Idaho).

This permit is based on your permit application received on December 28, 2006. This permit is effective immediately and replaces PTC No. P-040025 and PTC No. P-040026 both of which were issued on October 1, 2004, the terms and conditions of which no longer apply. This permit does not release Mountain Home Air Force Base from compliance with all other applicable federal, state, or local laws, regulations, permits, or ordinances.

Please beware that this permit to construct conflicts with existing Tier I operating permit conditions and that you may operate the source so long as it does not violate terms or conditions of the existing Tier I operating permit. As you requested the permit to construct will be incorporated into the Tier I operating permit at the time of renewal.

A representative of the Boise Regional office will contact you regarding a meeting with DEQ to discuss the permit terms and requirements. DEQ recommends the following representatives attend the meeting: your facility's plant manager, responsible official, environmental contact, and any operations staff responsible for day-to-day compliance with permit conditions.

Pursuant to IDAPA 58.01.23, you, as well as any other entity, may have the right to appeal this final agency action within 35 days of the date of this decision. However, prior to filing a petition for a contested case, I encourage you to call Tracy Drouin at (208) 373-0502 to address any questions or concerns you may have with the enclosed permit.

Sincerely,

Mike Simon
Stationary Source Program Manager
Air Quality Division

MS\TD\slm Project No. P-060068

Enclosures

c: Regional Office
Permit Coordinator (Ltr only)
Permit Writer
Marilyn Seymore/ Pat Rayne, Air Quality Division
Laurie Kral, US EPA Region 10
Permit Binder
Source File
Phyllis Heitman (Ltr Only)
Reading File (Ltr Only)
Joan Lechtenberg, Public Comment (If Public comment period was done)

	Air Quality **PERMIT TO CONSTRUCT** **State of Idaho** **Department of Environmental Quality**	**PERMIT No.:** P-060068 **FACILITY ID No.:** 039-00001 **AQCR:** 63 **CLASS:** A **SIC:** 9711 **ZONE:** 11 **UTM COORDINATE (km):** 592.5, 4667.0

1. **PERMITTEE** The United States Air Force, Mountain Home Air Force Base			
2. **PROJECT** Permit to Construct Modification			
3. **MAILING ADDRESS** 366 Gunfighter Avenue, Suite 331	**CITY** Mountain Home Air Force Base	**STATE** ID	**ZIP** 83648-5442
4. **FACILITY CONTACT** Bryan Trimberger	**TITLE** Air Quality Manager	**TELEPHONE** (208) 828-3724	
5. **RESPONSIBLE OFFICIAL** Anthony J. Rock	**TITLE** Wing Commander, MHAFB	**TELEPHONE** (208) 828-3724	
6. **EXACT PLANT LOCATION** Eight miles southwest of Mountain Home, Idaho, off State Route 67		**COUNTY** Elmore	
7. **GENERAL NATURE OF BUSINESS & KINDS OF PRODUCTS** National defense			

8. **PERMIT AUTHORITY**

This permit is issued according to the Rules for the Control of Air Pollution in Idaho, IDAPA 58.01.01.200 through 228, and pertains only to emissions of air contaminants regulated by the state of Idaho and to the sources specifically allowed to be constructed or modified by this permit.

This permit (a) does not affect the title of the premises upon which the equipment is to be located; (b) does not release the permittee from any liability for any loss due to damage to person or property caused by, resulting from, or arising out of the design, installation, maintenance, or operation of the proposed equipment; (c) does not release the permittee from compliance with other applicable federal, state, tribal, or local laws, regulations, or ordinances; (d) in no manner implies or suggests that the Department of Environmental Quality (DEQ) or its officers, agents, or employees, assume any liability, directly or indirectly, for any loss due to damage to person or property caused by, resulting from, or arising out of design, installation, maintenance, or operation of the proposed equipment.

This permit will expire if construction has not begun within two years of its issue date or if construction is suspended for one year.

This permit has been granted on the basis of design information presented with its application. Changes in design, equipment or operations may be considered a modification. Modifications are subject to DEQ review in accordance with IDAPA 58.01.01.200 through 228 of the Rules for the Control of Air Pollution in Idaho.

TRACY DROUIN, PERMIT WRITER
DEPARTMENT OF ENVIRONMENTAL QUALITY

DATE MODIFIED/REVISED:

MIKE SIMON, STATIONARY SOURCE PROGRAM MANAGER
DEPARTMENT OF ENVIRONMENTAL QUALITY

DATE ISSUED: May 24, 2007

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Acronyms, Units, and Chemical Nomenclature

AQCR	Air Quality Control Region
ASTM	American Society for Testing and Materials
CAA	Clean Air Act
CAS	Chemical Abstract Service
CFR	Code of Federal Regulations
CO	carbon monoxide
Cr^{+6}	hexavalent chromium
DEQ	Department of Environmental Quality
EPA	U.S. Environmental Protection Agency
gal/day	gallons per day
gr/dscf	grains per dry standard cubic foot
HDI	hexamethylene diisocyanate
hr/yr	hours per year
HVLP	high-volume, low-pressure
IDAPA	A numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
km	kilometer
lb/gal	pounds per gallon
LPB-1330	large paint booth - Hanger 1330
MSDS	material safety data sheets
MMBtu/hr	million British thermal units per hour
MHAFB	Mountain Home Air Force Base
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_X	oxides of nitrogen
O&M	operations and maintenance
O_2	oxygen
PM	particulate matter
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
PTC	permit to construct
PW	process weight
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SO_2	sulfur dioxide
SPB-1330	small paint booth - Hanger 1330
T/yr	tons per any consecutive 12-month period
U.S.C.	United States Code
UTM	Universal Transverse Mercator
VOC	volatile organic compound
wt%	percent by weight

1. PERMIT TO CONSTRUCT SCOPE

Purpose

1.1 The purpose of this Permit to Construct (PTC) is to modify permit conditions. The facility requested flexibility for engine testing and material inventory, and also to clarify or modify visible emissions requirements for the hospital boilers, emergency generators, hush houses, bead blasting and surface coating operations. The modifications in this PTC will be incorporated into the Tier I operating permit at the time of renewal.

1.2 This PTC replaces PTC No. P-040025, issued on October 1, 2004, and PTC No. P-040026 issued on October 1, 2004, the terms and conditions of which shall no longer apply.

Regulated Sources

1.3 Table 1.1 lists all sources of regulated emissions in this PTC.

Table 1.1 SUMMARY OF REGULATED SOURCES

Permit Section	Source Description	Emissions Control(s)
2	Hospital boilers, 1 Hurst Model No. C1-G0-12, Heat input capacity-1.05 MMBtu/hr and three Kewanee boilers, Model Nos. LSW-125-GO, Heat input capcity-5.231 MMBtu/hr (each).	None
3	3 Emergency Generators, Model No. SR4 (each), Power output 750 kW (each)	None
4	Hush Houses I and II	None
5	Bead-blasting unit	Dust collector
6	Flight line area spray painting	None
7	Vehicle spray paint booth	Spray booth filters
8	Aircraft and aircraft parts spray booths	Spray booth filters

2. HOSPITAL BOILERS

2.1 Process Description

One Hurst boiler and three Kewanee boilers provide space heat and other heat needs at the base hospital. The hospital boilers are dual-fuel capable and operate on natural gas or distillate fuel.

2.2 Emissions Control Description

Emissions from the hospital boilers are uncontrolled.

Emissions Limits

2.3 SO_2 Emission Limits

Emissions of SO_2 from the Kewanne boilers common hospital boiler stack shall not exceed 2.1 tons per any consecutive 12-month period.

2.4 Fuel Burning Equipment - Particulate Matter Limit

As required by IDAPA 58.01.01.677, particulate matter emissions from the boiler stacks shall not exceed the following stack gas concentrations:

- Distillate fuel oil - 0.05 gr/dscf corrected to 3% oxygen by volume
- Natural gas – 0.015 gr/dscf corrected to 3% oxygen by volume

2.5 Visible Emissions Limit

Emissions from the hospital boiler stacks, or any other stack, vent, or functionally equivalent opening associated with the boilers, shall not exceed 20% opacity for a period or periods aggregating more than three minutes in any 60-minute period as required by IDAPA 58.01.01.625. Opacity shall be determined by the procedures contained in IDAPA 58.01.01.625.

Operating Requirements

2.6 Fuel Type

The only fuels allowed to be combusted in the hospital boilers are the following:

- Natural gas
- Distillate fuel oil (ASTM Grade 1 fuel oil; ASTM Grade 2 fuel oil)

2.7 Hours of Operation Limits

The permittee shall not operate any hospital boiler for more than 500 hours per any consecutive 12-month period when fueled by distillate fuel oil.

2.8 Fuel Oil Sulfur Content

The sulfur content of the distillate fuel oil combusted in the hospital boilers shall not exceed the following:

- ASTM Grade 1 fuel oil – 0.3 % by weight
- ASTM Grade 2 fuel oil – 0.5 % by weight

Monitoring and Recordkeeping Requirements

2.9 Visible Emissions Monitoring

The permittee shall conduct a quarterly see/no see visible emissions observation of each of the hospital boiler stacks during normal operations. If any visible emissions are present at the time of the observation, the permittee shall conduct an opacity visible emissions observation in accordance with IDAPA 58.01.01.625.04 while the boiler is operating. If it is determined in accordance with IDAPA 58.01.01.625 that opacity is greater than 20%, the permittee shall take all necessary corrective action and report excess emissions in accordance with IDAPA 58.01.01.130-136. The permittee shall record the results of each visible emission observation, and corrective action taken, if any, and maintain the records in accordance with General Provision 7.

[April 23, 2007]

2.10 Monitor Operating Parameters

The permittee shall monitor and record the following information and retain records of this information onsite for the most recent five-year period and shall be made available to DEQ representatives upon request.

- The annual hours of operation of the Hurst boiler when combusting either ASTM Grade 1 or ASTM Grade 2 fuel oils. Annual hours of operation shall be determined by summing daily hours of operation monthly, and then summing monthly hours of operation over the previous consecutive 12-month period.
- The permittee shall obtain documentation of the fuel oil sulfur content for each shipment of distillate fuel received from the fuel supplier. The documentation shall clearly indicate the fuel oil sulfur content in weight percent of sulfur present in each fuel oil shipment.

3. EMERGENCY GENERATORS

Process Description

3.1 Emission Unit Description

The three emergency generators provide emergency power to the base hospital in the event of a power failure.

3.2 Emissions Control Description

Emissions from the three emergency generator engines are uncontrolled.

Emissions Limits

3.3 Emissions Limits

The aggregate sulfur dioxide emissions and the aggregate nitrogen oxides emissions from the three emergency generator stacks shall not exceed any corresponding emissions rate limits listed in Table 3.1.

Table 3.1 EMERGENCY GENERATORS EMISSIONS LIMITS

Source Description	SO_2	NO_X
	Tons/year	Tons/year
Total generator emissions[a]	3.1	18.1

[a] Total generator emissions are the aggregated emissions from the three emergency generators.

3.4 Visible Emissions Limit

Emissions from each stack of the three emergency generators, or any other stack, vent, or functionally equivalent opening associated with the generators, shall not exceed 20% opacity for a period or periods aggregating more than three minutes in any 60-minute period as required by IDAPA 58.01.01.625. Opacity shall be determined by the procedures contained in IDAPA 58.01.01.625.

Operating Requirements

3.5 Fuel Type

The only fuels allowed to be combusted in the emergency generators are the following:

- Distillate fuel oil (ASTM Grade 1 fuel oil; ASTM Grade 2 fuel oil)

3.6 Hours of Operation Limits

The maximum annual hours of operation of each emergency generator shall not exceed 500 hours per consecutive 12-month period.

3.7 Fuel Oil Sulfur Content

The sulfur content of the distillate fuel oil combusted in any of the three emergency generators shall not exceed the following:

- ASTM Grade 1 fuel oil – 0.3 % by weight
- ASTM Grade 2 fuel oil – 0.5 % by weight

Monitoring and Recordkeeping Requirements

3.8 Visible Emissions Monitoring

The permittee shall conduct a quarterly see/no see visible emissions observation on each emergency generator stack during normal operating conditions if/when they are operating. If the generators are not operating during the time of the scheduled quarterly observation, the permittee shall indicate such and record all other relevant information in accordance with General Provision 7. If the generators are operating during the quarterly observation and any visible emissions are present at the time of the observation, the permittee shall conduct an opacity visible emissions observation in accordance with IDAPA 58.01.01.625.04 while the generator is operating. If it is determined in accordance with IDAPA 58.01.01.625 that opacity is greater than 20%, the permittee shall take all necessary corrective action and report excess emissions in accordance with IDAPA 58.01.01.130-136. The permittee shall record the results of each visible emission observation, and corrective action taken, if any, and maintain the records in accordance with General Provision 7.

[April 23, 2007]

3.9 Monitor Operating Parameters

The permittee shall monitor and record the following information to demonstrate compliance with Permit Conditions 3.6 and 3.7. Records of this information shall be kept onsite for the most recent five-year period and shall be made available to DEQ representatives upon request.

- The annual hours of operation of each emergency generator. Annual hours of operation shall be determined by summing daily hours of operation monthly, and then summing monthly hours of operation over the previous consecutive 12-month period.
- The permittee shall obtain documentation of the fuel oil sulfur content for each shipment of distillate fuel received from the fuel supplier. The documentation shall clearly indicate the fuel oil sulfur content in weight percent of sulfur present in each fuel oil shipment.

4. HUSH HOUSE I, BUILDING 1344; AND HUSH HOUSE II, BUILDING 270

Process Description

4.1 Emission Unit Description

Two hush houses are used to test jet engines. The hush houses are used to minimize noise form the engine test operations.

4.2 Emissions Control Description

Emissions from the hush houses are uncontrolled.

Emissions Limits

4.3 PM_{10}, SO_2, NO_x, CO, and VOC Emissions Limits

Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM_{10}), SO_2, oxides of nitrogen (NO_x), carbon monoxide (CO), and volatile organic compound (VOC) emissions from the Hush House I and II augmentor tubes shall not exceed any corresponding emissions rate limit listed in Table 5.1 below.

Table 5.1 ANNUAL HUSH HOUSE EMISSION RATE LIMITS*

Source Description	PM	PM_{10}	SO_2	NO_x	VOC	CO
	T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
Hush Houses I and II combined	4.0	4.0	1.5	85	13	63

* As determined by multiplying the actual or allowable (if actual is not available) pound-per-hour rate by the hours per year that the allowable process(es) may operate, or by actual annual production rates.

4.4 Visible Emissions Limit

Visible emissions from the augmentor tube, or any other stack, vent, or equivalent opening shall not exceed 20% for a period or periods aggregating more than three minutes in any 60-minute period as required in IDAPA 58.01.01.625. Opacity shall be determined in accordance with the procedures contained in IDAPA 58.01.01.625.

Operating Requirements

4.5 Operating Hours Limits

The permittee shall not operate the stationary engines for more than 690 hours per any consecutive 12-month period.

Testing of stationary engines in the Military power setting is limited to 103.5 hours per any consecutive 12-month period.

Testing of stationary engines in the Afterburner power setting is limited to 75.9 hours per any consecutive 12-month period.

4.6 Engine Models

Any aircraft engine may be tested in Hush Houses I and II.

[April 23, 2007]

4.7 Testing Locations

All stationary engines to be tested shall be tested inside a Hush House.

Monitoring and Recordkeeping Requirements

4.8 Visible Emissions Monitoring

No specific compliance demonstration is required other than the quarterly facility-wide visible emissions inspection requirement in the facility's Tier I operating permit.

[April 23, 2007]

4.9 Operations Monitoring

The permittee shall monitor and record the operating hours and power settings of stationary jet engines on a monthly and annual basis. A compilation of the most recent five years of records shall be maintained onsite and shall be made available to DEQ representatives upon request.

5. BEAD-BLASTING UNIT - BUILDING 1330

Process Description

5.1 Emission Unit Description

The bead-blast unit in Building 1330 is used to strip paint from small components such as fuel tanks and bomb racks.

5.2 Emissions Control Description

Emissions from the bead-blast booth are controlled by a dust collector.

Emissions Limits

5.3 Hexavalent Chromium Emissions Limit

Hexavalent chromium emissions (reported as Cr^{+6}) from the bead-blast unit vent shall not exceed 0.137 pounds per any consecutive 12-month period.

5.4 Visible Emissions Limit

Visible emissions from the bead-blast unit vent, or any other stack, vent or functionally equivalent opening associated with the bead-blast unit, shall not exceed 20% for a period or periods aggregating more than three minutes in any 60-minute period as required in IDAPA 58.01.01.625. Opacity shall be determined in accordance with the procedures contained in IDAPA 58.01.01.625.

Operating Requirements

5.5 Operating Hours Limit

The permittee shall not operate the bead-blast unit for more than 4,500 hours per any consecutive 12-month period.

5.6 Hexavalent Chromium Weight Percent

The annual average weight percent of Cr^{+6} shall not exceed 1.075% of the particulate matter controlled by the dust collector assembly per any consecutive 12-month period.

5.7 Pollution Control Equipment

The permittee shall operate and maintain the dust collector assembly in accordance with manufacturer specifications.

Monitoring and Recordkeeping Requirements

5.8 Visible Emissions Monitoring

No specific compliance demonstration is required other than the quarterly facility-wide visible emissions inspection requirement in the facility's Tier I operating permit.

[April 23, 2007]

5.9 Operating Hours

The permittee shall monitor and record the bead-blast unit hours of operation on a monthly and annual basis. A compilation of the most recent five years of records shall be maintained onsite and shall be made available to DEQ representatives upon request.

5.10 Hexavalent Chromium Sampling

The permittee shall monitor and record the Cr^{+6} weight percent of the particulate matter collected by the dust collector assembly. The material shall be sampled and analyzed prior to disposal. A compilation of the most recent five years of records shall be maintained onsite and shall be made available to DEQ representatives upon request.

6. FLIGHT LINE AREA SPRAY PAINTING

Process Description

6.1 Emission Unit Description

The flight line area spray painting is open-air spray painting operations that are conducted in the flight line area.

6.2 Emissions Control Description

Emissions from flight line area spray painting are controlled with HVLP spray guns.

Emissions Limits

6.3 VOC Emissions limits

The VOC emissions from open-air spray painting operations in the flight line area, which includes, but is not limited to, aircraft ramps, aprons, open hangers, and static display aircraft on the air force base, shall not exceed 1.5 tons per year (T/yr).

6.4 Visible Emissions limits

Visible emissions from the flight line area spray painting shall not exceed 20% for a period or periods aggregating more than three minutes in any 60-minute period as required in IDAPA 58.01.01.625. Opacity shall be determined in accordance with the procedures contained in IDAPA 58.01.01.625.

Operating Requirements

6.5 Paint Throughput Limit

The maximum throughput of all coatings and solvents applied in open-air spray painting operations in the flight line area shall not exceed 16.1 gallons per day (gal/day), nor shall it exceed 300 gallons per any consecutive 12-month period.

6.6 Spray Paint Guns

The permittee shall use high-volume, low-pressure (HVLP) spray paint guns or equivalent low-emissions spray guns for bulk paint applications.

Monitoring and Recordkeeping Requirements

6.7 Throughput Monitoring

6.7.1 The permittee shall monitor and record the throughput (type and amount) of all coatings and solvents applied in open-air spray painting operations in the flight line area.

6.7.2 Throughput shall be recorded in gallons per day (gal/day) and gallons per any consecutive 12-month period. The consecutive 12-month period throughput shall be calculated monthly.

6.7.3 A compilation of the most recent five years of records shall be maintained onsite and shall be made available to DEQ representatives upon request.

7. VEHICLE SPRAY PAINT BOOTH

Process Description

7.1 Emission Unit Description

Building 1100 contains a vehicle spray paint booth that is used to paint base vehicles (trucks, buses, etc.) and parts as needed.

7.2 Emissions Control Description

Emissions from the vehicle spray paint booth are controlled by particulate filters.

Emissions Limits

7.3 VOC Emissions limits

The VOC emissions from the vehicle spray paint booth stack shall not exceed 4 T/yr.

7.4 Process Weight Limits

No person shall discharge to the atmosphere from any source operating on or after October 1, 1979, PM in excess of the amount shown by the following equations, where E is the allowable emission from the entire source in pounds per hour, and PW is the process weight in pounds per hour:

a. If PW is less than 9,250 lb/hr,

$$E = 0.045 (PW)^{0.60}$$

b. If PW is equal to or greater than 9,250 lb/hr,

$$E = 1.10 (PW)^{0.25}$$

7.5 Visible Emission Limits

Visible emissions from the vehicle spray paint booth stack, or any other stack, vent, or functionally equivalent opening associated with the spray paint booth, shall not exceed 20% opacity for a period or periods aggregating more than three minutes in any 60-minute period. Opacity shall be determined in accordance with the procedures contained in IDAPA 58.01.01.625.

Operating Requirements

7.6 Paint Throughput Limit

The maximum throughput of all coatings and solvents applied in the spray paint booth shall not exceed 300 gallons per any consecutive 12-month period.

7.7 Filtration System

The pressure drop across the spray paint booth filters shall be maintained within manufacturer specifications.

7.8 Maintain Efficiency of the Booth

The permittee shall conduct inspections of the particulate-matter filtration system on days the paint booth is in operation. The filtration system shall be maintained in accordance with manufacturer specifications.

7.9 Spray Paint Guns

The permittee shall use HVLP spray paint guns or equivalent low-emissions spray guns for bulk-paint applications.

Monitoring and Recordkeeping Requirements

7.10 Visible Emissions Monitoring

No specific compliance demonstration is required other than the quarterly facility-wide visible emissions inspection requirement in the facility's Tier I operating permit.

[April 23, 2007]

7.11 Throughput Monitoring

7.11.1 The permittee shall monitor and record the throughput (type and amount) of all coatings and solvents, applied in the paint booth on a daily and annual basis.

7.11.2 Throughput shall be recorded in gallons per day (gal/day) and gallons per any consecutive 12-month period. The consecutive 12-month period throughput shall be calculated monthly.

7.11.3 A compilation of the most recent five years of records shall be maintained onsite and shall be made available to DEQ representatives upon request.

7.12 Filter System Inspection and Maintenance

The permittee shall maintain records of all inspections and maintenance performed on the particulate-matter filtration system. The records shall contain, but are not limited to, the date of the inspection and/or maintenance performed, the relative condition of the filter pads, and the type of maintenance performed (e.g., replacement of pads, etc.). A compilation of the most recent five years of inspection and maintenance records shall be kept onsite and shall be made available to DEQ representatives upon request.

8. AIRCRAFT AND AIRCRAFT PARTS SURFACE COATING SPRAY BOOTHS

Process Description

8.1 Emission Unit Description

Corrosion control treating and surface preparation and painting aircraft and aircraft parts are performed in two spray paint booths. Aircraft and some parts are treated in the large paint booth (LPB 1330) and parts are then painted in the small spray paint booth (SPB 1330).

8.2 Emissions Control Description

Emissions from aircraft and aircraft parts surface coating include a carbon adsorption filter (LPB 1330) and PM filters in both spray booths.

Emissions Limits

8.3 Process Weight Limits

No person shall discharge to the atmosphere from any source operating on or after October 1, 1979, PM in excess of the amount shown by the following equations, where E is the allowable emission from the entire source in pounds per hour, and PW is the process weight in pounds per hour.

a. If PW is less than 9,250 lb/hr,

$E=0.045(PW)^{0.6}$

b. If PW is equal to or greater than 9,250 lb/hr,

$E=1.10(PW)^{0.25}$

8.4 Visible Emissions limits

Visible emissions from the LPB 1330 stacks, SPB 1330 stack or any other point of emissions associated with the paint booths at Hangar 1330, shall not exceed 20% for a period or periods aggregating more than three minutes in any 60-minute period as required in IDAPA 58.01.01.625. Opacity shall be determined in accordance with the procedures contained in IDAPA 58.01.01.625.

Operating Requirements

8.5 LPB-1330 Throughput Limit

The maximum throughput of all coatings and solvents in the aircraft painting booth (LPB-1330) shall not exceed 684 gal/day or 1,250 gallons per any consecutive 12-month period.

8.6 SPB-1330 Throughput Limits

The maximum throughput of coatings and solvents in the aircraft parts painting booth (SPB-1330) shall not exceed 140 gal/day or 350 gallons per any consecutive 12-month period.

8.7 Hexamethylene Diisocyanate (HDI)

The maximum daily throughput of materials containing not more than 1% by weight HDI (CAS No. 82-06-0) shall be limited to the quantities listed in the appendix. The maximum daily throughput of materials containing in excess of 1% by weight HDI shall be determined on a case-by-case basis.

8.8 Maintain Efficiency of the Booth

The permittee shall conduct inspections of the LPB-1330 particulate-matter filtration system, the LPB-1330 VOC adsorption system, and the SPB-1330 particulate-matter filtration system on days the paint booths are in operation. The filtration systems shall be maintained in accordance with manufacturer specifications and the filtration system Operations and Maintenance (O&M) Manual.

8.9 Filtration System

The pressure drop across the LPB-1330 and SPB-1330 particulate-matter filtration systems shall be maintained within the manufacturer or O&M Manual specifications.

8.10 Spray Paint Guns

The permittee shall use HVLP spray paint guns or equivalent low-emissions spray guns for bulk-paint applications.

Monitoring and Recordkeeping Requirements

8.11 Visible Emissions Monitoring

No specific compliance demonstration is required other than the quarterly facility-wide visible emissions inspection requirement in the facility's Tier I operating permit.

[April 23, 2007]

8.12 Throughput Monitoring

The permittee shall monitor and record the throughput (type and amount) of all coatings and solvents applied in painting booth LPB-1330 and painting booth SPB-1330 on days of application. Throughput shall be recorded in gallons per day (gal/day) and gallons per any consecutive 12-month period. The consecutive 12-month period throughput shall be calculated monthly. A compilation of the most recent five years of records shall be maintained onsite and shall be made available to DEQ representatives upon request.

8.13 Filtration System Inspection and Maintenance

The permittee shall maintain records of all inspections and maintenance performed on the LPB-1330 particulate-matter filtration system, the LPB-1330 VOC adsorption system, and the SPB-1330 particulate-matter filtration system. The records shall contain, but are not limited to, the date of the inspection and/or maintenance performed, the relative condition of the filter pads, and the type of maintenance performed (e.g., replacement of pads, etc.). A compilation of the most recent five years of inspection and maintenance records shall be kept onsite and shall be made available to DEQ representatives upon request.

8.14 Monitoring of HDI-Containing Materials

The permittee shall record the days of application for all materials used in the booths that contain quantifiable amounts of HDI. The records shall contain, but are not limited to, the following information: the name and identification number of each HDI-containing product used, its content of HDI in percent by weight (wt%), the density of each HDI-containing product in pounds per gallon (lb/gal), throughput calculations for materials containing more than 1% by weight HDI, and the amount used in gallons of each product. A compilation of the most recent five years of records shall be kept onsite and shall be made available to DEQ representatives upon request.

8.15 Operations and Maintenance Manual

The permittee shall have developed an O&M Manual for the LPB-1330 particulate-matter filtration system and VOC adsorption system, and the SPB-1330 particulate-matter filtration system. The manual shall describe the procedures that will be followed to comply with General Provision 2 and the manufacturer specifications for the air pollution control devices. This manual shall remain onsite at all times and shall be made available to DEQ representatives upon request.

PERMIT TO CONSTRUCT GENERAL PROVISIONS

General Compliance

1. The permittee has a continuing duty to comply with all terms and conditions of this permit. All emissions authorized herein shall be consistent with the terms and conditions of this permit and the Rules for the Control of Air Pollution in Idaho. The emissions of any pollutant in excess of the limitations specified herein, or noncompliance with any other condition or limitation contained in this permit, shall constitute a violation of this permit and the Rules for the Control of Air Pollution in Idaho, and the Environmental Protection and Health Act, Idaho Code §39-101, et seq.

[Idaho Code §39-101, et seq.]

2. The permittee shall at all times (except as provided in the Rules for the Control of Air Pollution in Idaho) maintain in good working order and operate as efficiently as practicable, all treatment or control facilities or systems installed or used to achieve compliance with the terms and conditions of this permit and other applicable Idaho laws for the control of air pollution.

[IDAPA 58.01.01.211, 5/1/94]

3. Nothing in this permit is intended to relieve or exempt the permittee from the responsibility to comply with all applicable local, state, or federal statutes, rules and regulations.

[IDAPA 58.01.01.212.01, 5/1/94]

Inspection and Entry

4. Upon presentation of credentials, the permittee shall allow DEQ or an authorized representative of DEQ to do the following:

   a. Enter upon the permittee's premises where an emissions source is located or emissions related activity is conducted, or where records are kept under conditions of this permit;

- Have access to and copy, at reasonable times, any records that are kept under the conditions of this permit;
- Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit; and

   d. As authorized by the Idaho Environmental Protection and Health Act, sample or monitor, at reasonable times, substances or parameters for the purpose of determining or ensuring compliance with this permit or applicable requirements.

[Idaho Code §39-108]

Construction and Operation Notification

5. The permittee shall furnish DEQ written notifications as follows in accordance with IDAPA 58.01.01.211:

   a. A notification of the date of initiation of construction, within five working days after occurrence;

   b. A notification of the date of any suspension of construction, if such suspension lasts for one year or more;

c. A notification of the anticipated date of initial start-up of the stationary source or facility not more than sixty days or less than thirty days prior to such date;

d. A notification of the actual date of initial start-up of the stationary source or facility within fifteen days after such date; and

e. A notification of the initial date of achieving the maximum production rate, within five working days after occurrence - production rate and date.

[IDAPA 58.01.01.211, 5/1/94]

Performance Testing

6. If performance testing (air emissions source test) is required by this permit, the permittee shall provide notice of intent to test to DEQ at least 15 days prior to the scheduled test date or shorter time period as approved by DEQ. DEQ may, at its option, have an observer present at any emissions tests conducted on a source. DEQ requests that such testing not be performed on weekends or state holidays.

   All performance testing shall be conducted in accordance with the procedures in IDAPA 58.01.01.157. Without prior DEQ approval, any alternative testing is conducted solely at the permittee's risk. If the permittee fails to obtain prior written approval by DEQ for any testing deviations, DEQ may determine that the testing does not satisfy the testing requirements. Therefore, at least 30 days prior to conducting any performance test, the permittee is encouraged to submit a performance test protocol to DEQ for approval. The written protocol shall include a description of the test method(s) to be used, an explanation of any or unusual circumstances regarding the proposed test, and the proposed test schedule for conducting and reporting the test.

   Within 30 days following the date in which a performance test required by this permit is concluded, the permittee shall submit to DEQ a performance test report. The written report shall include a description of the process, identification of the test method(s) used, equipment used, all process operating data collected during the test period, and test results, as well as raw test data and associated documentation, including any approved test protocol.

[IDAPA 58.01.01.157, 4/5/00]

Monitoring and Recordkeeping

7. The permittee shall maintain sufficient records to ensure compliance with all of the terms and conditions of this permit. Records of monitoring information shall include, but not be limited to the following: (a) the date, place, and times of sampling or measurements; (b) the date analyses were performed; (c) the company or entity that performed the analyses; (d) the analytical techniques or methods used; (e) the results of such analyses; and (f) the operating conditions existing at the time of sampling or measurement. All monitoring records and support information shall be retained for a period of at least five years from the date of the monitoring sample, measurement, report, or application. Supporting information includes, but is not limited to, all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation and copies of all reports required by this permit. All records required to be maintained by this permit shall be made available in either hard copy or electronic format to DEQ representatives upon request.

[IDAPA 58.01.01.211, 5/1/94]

Excess Emissions

8. The permittee shall comply with the procedures and requirements of IDAPA 58.01.01.130-136 for excess emissions due to startup, shutdown, scheduled maintenance, safety measures, upsets and breakdowns.

[IDAPA 58.01.01.130-136, 4/5/00]

Certification

9. All documents submitted to DEQ, including, but not limited to, records, monitoring data, supporting information, requests for confidential treatment, testing reports, or compliance certification shall contain a certification by a responsible official. The certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document(s) are true, accurate, and complete.

[IDAPA 58.01.01.123, 5/1/94]

False Statements

10. No person shall knowingly make any false statement, representation, or certification in any form, notice, or report required under this permit, or any applicable rule or order in force pursuant thereto.

[IDAPA 58.01.01.125, 3/23/98]

Tampering

11. No person shall knowingly render inaccurate any monitoring device or method required under this permit or any applicable rule or order in force pursuant thereto.

[IDAPA 58.01.01.126, 3/23/98]

Transferability

12. This permit is transferable in accordance with procedures listed in IDAPA 58.01.01.209.06.

[IDAPA 58.01.01.209.06, 4/11/06]

Severability

13. The provisions of this permit are severable, and if any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

Appendix C

Emission Estimates

Building 6000 Emissions

Mountain Home AFB

Existing Emissions for Building 6000

Pollutant	Boiler Emission Rate (Worst		Generator Emission Rate		Total Emission Rate	
	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)
Total Particulate Matter (PM)	0.121	0.528	1.47	0.37	1.59	0.896
Total Particulate Matter (PM2.5)	0.118	0.516	1.21	0.30	1.33	0.819
Particulate Matter (PM10)	0.121	0.528	1.21	0.30	1.33	0.831
Sulfur Oxides (SO2)	8.220	36.004	12.21	3.05	20.43	39.055
Nitrogen Oxides (NOx)	2.316	10.142	72.42	18.10	74.73	28.246
Carbon Monoxide (CO)	1.311	5.741	16.60	4.15	17.91	9.890
VOC	0.086	0.375	2.13	0.53	2.21	0.907

Change in Emissions for Building 6000

Pollutant	Boiler Emission Rate		Generator Emission Rate		Total Emission Rate	
	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)
Total Particulate Matter (PM)	-0.003	-0.014	-0.75	-0.19	-0.75	-0.200
Total Particulate Matter (PM2.5)	0.000	-0.002	-0.48	-0.12	-0.49	-0.123
Particulate Matter (PM10)	-0.003	-0.014	-0.48	-0.12	-0.49	-0.135
Sulfur Oxides (SO2)	-8.211	-35.963	-12.18	-3.05	-20.39	-39.008
Nitrogen Oxides (NOx)	-0.770	-3.373	-49.20	-12.30	-49.97	-15.673
Carbon Monoxide (CO)	-0.013	-0.055	-4.02	-1.00	-4.03	-1.060
VOC	-0.001	-0.002	-0.65	-0.16	-0.65	-0.166

New Emissions for Building 6000

Pollutant	Boiler Emission Rate (NG Only)		Generator Emission Rate (Replace Generators)		Total Emission Rate	
	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)
Total Particulate Matter (PM)	0.12	0.51	0.73	0.18	0.84	0.696
Total Particulate Matter (PM2.5)	0.12	0.51	0.73	0.18	0.84	0.696
Particulate Matter (PM10)	0.12	0.51	0.73	0.18	0.84	0.696
Sulfur Oxides (SO2)	0.01	0.04	0.02	0.01	0.034	0.047
Nitrogen Oxides (NOx)	1.55	6.77	23.22	5.80	24.76	12.574
Carbon Monoxide (CO)	1.30	5.69	12.58	3.14	13.87	8.830
VOC	0.09	0.37	1.47	0.37	1.56	0.741
Total HAPs						0.14

GHG Emissions Summary for Hospital

Emissions Unit Name	Stack ID	CO_2	CO_2	N_2O	N_2O	CH_4	CH_4	Total on Mass Basis		CO2e	CO2e
		Metric Tons/Yr	Short Tons/Yr	Metric Tons/Yr	Short Tons/Yr	Metric Tons/Yr	Short Tons/Yr	Metric Tons/Yr	Short Tons/Yr	Metric Tons/Yr	Short Tons/Yr
New Generator 1 - 1097 HP	GEN1	299	329	0.0024	0.0027	0.012	0.013	299	329	300	330
New Generator 2 - 1097 HP	GEN2	299	329	0.0024	0.0027	0.012	0.013	299	329	300	330
Boiler 1 - 5.23 MMBTU (NG)	GEN4	2430	2678	0.0046	0.0051	0.046	0.051	2430	2678	2,432	2,681
Boiler 2 - 5.23 MMBTU (NG)	GEN5	2430	2678	0.0046	0.0051	0.046	0.051	2430	2678	2,432	2,681
Boiler 3 - 5.23 MMBTU (NG)	GEN6	2430	2678	0.0046	0.0051	0.046	0.051	2430	2678	2,432	2,681
Boiler 4 - 1.05 MMBTU (NG)	GEN7	488	538	0.00092	0.00101	0.0092	0.010	488	538	488	538
	Total	8,373	9,230	0.020	0.022	0.17	0.19	8,374	9,230	8,383	9,241
GHG Title V Thresholds									100		100,000

Potential Emission Calculations

Existing Hospital Generator Diesel Emissions (Three Identical Generators To be Removed)

Emission Point No.	Hos Gen
Fuel Type	Distillate #2
Generator Size (kW)	750
Generator Size (HP)	1005.8
BTU/gal distillate fuel	140,000
Maximum annual operating hours	500

Criteria Pollutant	Emission Factor (lb/MMBtu)	Emission Factor (lb/HP-hr)	Individual Generator Uncontrolled Potential to Emit Emission Rate (lb/hr)	Individual Generator Uncontrolled Potential to Emit Emission Rate (lb/yr)	Individual Generator Uncontrolled Potential to Emit Emission Rate (ton/yr)	All Three Generators Uncontrolled Potential to Emit Emission Rate (lb/hr)	All Three Generators Uncontrolled Potential to Emit Emission Rate (lb/yr)	All Three Generators Uncontrolled Potential to Emit Emission Rate (ton/yr)
Total Particulate Matter (PM)[1]	6.97E-02	4.88E-04	0.49	245	0.12	1.47	736	0.37
Total Particulate Matter ($PM_{2.5}$)[2]	5.73E-02	4.01E-04	0.40	202	0.10	1.21	605	0.30
Particulate Matter (PM_{10})[1,2]	5.73E-02	4.01E-04	0.40	202	0.10	1.21	605	0.30
Sulfur Oxides (SO_2) [3,4]		4.05E-03	4.07	2,034	1.017	12.205	6,103	3.0513
Nitrogen Oxides (NOx)[4]		0.024	24.14	12,070	6.03	72.4	36,209	18.10
Carbon Monoxide (CO)[4]		0.0055	5.53	2,766	1.38	16.6	8,298	4.15
VOC[4]		7.05E-04	0.71	355	0.18	2.13	1,064	0.53

Idaho TAPs [5]	Emission Factor (lb/MMBtu)	Emission Factor (lb/HP-hr)	Individual Generator Uncontrolled Potential to Emit Rate (lb/hr)	Individual Generator Uncontrolled Potential to Emit Rate (lb/yr)	Individual Generator Uncontrolled Potential to Emit Rate (ton/yr)	All Three Generators Uncontrolled Potential to Emit Rate (lb/hr)	All Three Generators Uncontrolled Potential to Emit Rate (lb/yr)	All Three Generators Uncontrolled Potential to Emit Rate (ton/yr)
Benzene	7.76E-04	5.43E-06	5.46E-03	2.73E+00	1.37E-03	1.64E-02	8.20E+00	4.10E-03
Toluene	2.81E-04	1.97E-06	1.98E-03	9.89E-01	4.95E-04	5.94E-03	2.97E+00	1.48E-03
Xylenes	1.93E-04	1.35E-06	1.36E-03	6.79E-01	3.40E-04	4.08E-03	2.04E+00	1.02E-03
Propylene	2.79E-03	1.95E-05	1.96E-02	9.82E+00	4.91E-03	5.89E-02	2.95E+01	1.47E-02
Formaldehyde	7.89E-05	5.52E-07	5.56E-04	2.78E-01	1.39E-04	1.67E-03	8.33E-01	4.17E-04
Acetaldehyde	2.52E-05	1.76E-07	1.77E-04	8.87E-02	4.44E-05	5.32E-04	2.66E-01	1.33E-04
Acrolein	7.88E-06	5.52E-08	5.55E-05	2.77E-02	1.39E-05	1.66E-04	8.32E-02	4.16E-05
Naphthalene	1.30E-04	9.10E-07	9.15E-04	4.58E-01	2.29E-04	2.75E-03	1.37E+00	6.86E-04
Acenaphthylene	9.23E-06	6.46E-08	6.50E-05	3.25E-02	1.62E-05	1.95E-04	9.75E-02	4.87E-05
Acenaphthene	4.68E-06	3.28E-08	3.30E-05	1.65E-02	8.24E-06	9.89E-05	4.94E-02	2.47E-05
Fluorene	1.28E-05	8.96E-08	9.01E-05	4.51E-02	2.25E-05	2.70E-04	1.35E-01	6.76E-05
Phenanthrene	4.08E-05	2.86E-07	2.87E-04	1.44E-01	7.18E-05	8.62E-04	4.31E-01	2.15E-04
Anthracene	1.23E-06	8.61E-09	8.66E-06	4.33E-03	2.16E-06	2.60E-05	1.30E-02	6.49E-06
Fluoranthene	4.03E-06	2.82E-08	2.84E-05	1.42E-02	7.09E-06	8.51E-05	4.26E-02	2.13E-05
Pyrene	3.71E-06	2.60E-08	2.61E-05	1.31E-02	6.53E-06	7.84E-05	3.92E-02	1.96E-05
Benz(a)anthracene	6.22E-07	4.35E-09	4.38E-06	2.19E-03	1.09E-06	1.31E-05	6.57E-03	3.28E-06
Chrysene	1.53E-06	1.07E-08	1.08E-05	5.39E-03	2.69E-06	3.23E-05	1.62E-02	8.08E-06
Benzo(b)fluoranthene	1.11E-06	7.77E-09	7.82E-06	3.91E-03	1.95E-06	2.34E-05	1.17E-02	5.86E-06
Benzo(k)fluoranthene	2.18E-07	1.53E-09	1.53E-06	7.67E-04	3.84E-07	4.60E-06	2.30E-03	1.15E-06
Benzo(a)pyrene	2.57E-07	1.80E-09	1.81E-06	9.05E-04	4.52E-07	5.43E-06	2.71E-03	1.36E-06
Indeno(1,2,3-cd)pyrene	4.14E-07	2.90E-09	2.91E-06	1.46E-03	7.29E-07	8.74E-06	4.37E-03	2.19E-06
Dibenz(a,h)anthracene	3.46E-07	2.42E-09	2.44E-06	1.22E-03	6.09E-07	7.31E-06	3.65E-03	1.83E-06
Benzo(g,h,I)perylene	5.56E-07	3.89E-09	3.91E-06	1.96E-03	9.79E-07	1.17E-05	5.87E-03	2.94E-06
Total PAH	2.12E-04	7.05E-04	7.09E-01	3.55E+02	1.77E-01	2.13E+00	1.06E+03	5.32E-01
Total HAPs					**0.003**			**0.008**

[1] Emission factors from AP-42 5th Edition Section 3.4 Table 3.4-2 (October 1996)

[2] Assumed PM2.5 = PM10

[3] SOX emission factor = 8.09E-003 x S where S is the percent sulfur content in the diesel fuel. At 0.5%, S = 0.5

[4] Emission factors from AP-42 5th Edition Section 3.4 Table 3.4-1 (October 1996)

[5] Emission factors from AP-42 5th Edition Section 3.4 Tables3.4-3 and 3.4-4 (October 1996)

Assumed brake-specific fuel consumption of 7,000 BTU/HP-hr to convert lb/MMBTU to lb/HP-hr

GHG Emissions - Individual Generator			
Compound [7]	Emissions (metric tons)	GWP	CO2e
CO_2	298.54	1	298.540
CH_4	0.0121	21	0.254
N_2O	0.00242	310	0.751
Total	298.55		299.54

For CO2, Use Equation C-1 from 40 CFR 98 Subpart C:

CO2 = 1x10-3 x Fuel x HHV x EF

CO2 = Annual CO2 mass emissions in Metric Tons	=	298.54
Fuel = Volume of fuel used (gallons)	=	29,250
HHV = High Heat Value from Table C-1 (mmBTU/gal)	=	0.138
EFCO2 = Emission factor (kg/mmBTU)	=	73.96

For CH4 and N2O, Use Equation C-8 from 40 CFR 98 Subpart C:

CH4, N2O = 1x10-3 x Fuel x HHV x EF

CH4 = Annual CH4 mass emissions in Metric Tons	=	0.0121
N2O = Annual N2O mass emissions in Metric Tons	=	0.00242
Fuel = Volume of fuel used (gallons)	=	29,250
HHV = High Heat Value from Table C-1 (mmBTU/gal)	=	0.138
EFCH4 = Emission factor (kg/mmBTU)	=	3.00E-03
EFN2O = Emission factor (kg/mmBTU)	=	6.00E-04

Notes

[7] 40 CFR 98.32 - For stationary fuel combustion sources only, report CO2, CH4, and N2O

GWP = Global Warming Potential - 40 CFR 98 Subpart A, Table A-1

Comparison - Exchange Three Old Hospital Generators with Two New Hospital Generators

Mountain Home AFB

Table 1 - Three Existing Generators (to be removed)

Pollutant	Emission Rate (lb/hr)	Emission Rate (ton/yr)
Total Particulate Matter (PM)[1]	1.47	0.37
Total Particulate Matter ($PM_{2.5}$)[2]	1.21	0.30
Particulate Matter (PM_{10})[1]	1.21	0.30
Sulfur Oxides (SO_2)[3]	12.21	3.05
Nitrogen Oxides (NOx)[4]	72.42	18.10
Carbon Monoxide (CO)[4]	16.60	4.15
VOC	2.13	0.53

Table 2 - Two New Generators (New Emissions)

Pollutant	Diesel Emission Rate (lb/hr)	Diesel Emission Rate (ton/yr)
Total Particulate Matter (PM)[1]	0.73	0.18
Total Particulate Matter ($PM_{2.5}$)[2]	0.73	0.18
Particulate Matter (PM_{10})[1]	0.73	0.18
Sulfur Oxides (SO_2)[3]	0.02	0.01
Nitrogen Oxides (NOx)[4]	23.22	5.80
Carbon Monoxide (CO)[4]	12.58	3.14
VOC	1.47	0.37

Table 3 - Net Difference

Pollutant	Change in Emission Rate (lb/hr)	Change in Emission Rate (ton/yr)	Idaho Modeling Level I Thresholds[1] (lb/hr)	Idaho Modeling Level I Thresholds[1] (ton/yr)	Exceed Leve I Threshold (lb/hr)	Exceed Leve I Threshold (ton/yr)
Total Particulate Matter (PM)[1]	-0.747	-0.187				
Total Particulate Matter ($PM_{2.5}$)[2]	-0.485	-0.121	0.22		NO	
Particulate Matter (PM_{10})[1]	-0.485	-0.121	0.054	0.35	NO	NO
Sulfur Oxides (SO_2)[3]	-12.1806	-3.0451	0.21	1.2	NO	NO
Nitrogen Oxides (NOx)[4]	-49.200	-12.300	0.2	1.2	NO	NO
Carbon Monoxide (CO)[4]	-4.020	-1.005	15		NO	
VOC	-0.653	-0.163				

[1] State of Idaho Guideline for Performing Air Quality Impact Analyses, Table 2, July 2011

Table 4 - Toxic Difference

Idaho TAPs	Removed Generators (Three Generators) (lb/hr)	Removed Generators (Three Generators) (ton/yr)	New Generators (Two Generators) (lb/hr)	New Generators (Two Generators) (ton/yr)	Net Difference (lb/hr)	Net Difference (ton/yr)
Benzene	1.64E-02	4.10E-03	1.27E-02	3.18E-03	-3.68E-03	-9.20E-04
Toluene	5.94E-03	1.48E-03	4.60E-03	1.15E-03	-1.33E-03	-3.33E-04
Xylenes	4.08E-03	1.02E-03	3.16E-03	7.90E-04	-9.15E-04	-2.29E-04
Propylene	5.89E-02	1.47E-02	4.57E-02	1.14E-02	-1.32E-02	-3.31E-03
Formaldehyde	1.67E-03	4.17E-04	1.29E-03	3.23E-04	-3.74E-04	-9.35E-05
Acetaldehyde	5.32E-04	1.33E-04	4.13E-04	1.03E-04	-1.19E-04	-2.99E-05
Acrolein	1.66E-04	4.16E-05	1.29E-04	3.23E-05	-3.74E-05	-9.34E-06
Naphthalene	2.75E-03	6.86E-04	2.13E-03	5.32E-04	-6.16E-04	-1.54E-04
Acenaphthylene	1.95E-04	4.87E-05	1.51E-04	3.78E-05	-4.38E-05	-1.09E-05
Acenaphthene	9.89E-05	2.47E-05	7.67E-05	1.92E-05	-2.22E-05	-5.55E-06
Fluorene	2.70E-04	6.76E-05	2.10E-04	5.24E-05	-6.07E-05	-1.52E-05
Phenanthrene	8.62E-04	2.15E-04	6.68E-04	1.67E-04	-1.93E-04	-4.84E-05
Anthracene	2.60E-05	6.49E-06	2.01E-05	5.04E-06	-5.83E-06	-1.46E-06
Fluoranthene	8.51E-05	2.13E-05	6.60E-05	1.65E-05	-1.91E-05	-4.78E-06
Pyrene	7.84E-05	1.96E-05	6.08E-05	1.52E-05	-1.76E-05	-4.40E-06
Benz(a)anthracene	1.31E-05	3.28E-06	1.02E-05	2.55E-06	-2.95E-06	-7.37E-07
Chrysene	3.23E-05	8.08E-06	2.51E-05	6.27E-06	-7.25E-06	-1.81E-06
Benzo(b)fluoranthene	2.34E-05	5.86E-06	1.82E-05	4.55E-06	-5.26E-06	-1.32E-06
Benzo(k)fluoranthene	4.60E-06	1.15E-06	3.57E-06	8.93E-07	-1.03E-06	-2.58E-07
Benzo(a)pyrene	5.43E-06	1.36E-06	4.21E-06	1.05E-06	-1.22E-06	-3.05E-07
Indeno(1,2,3-cd)pyrene	8.74E-06	2.19E-06	6.78E-06	1.70E-06	-1.96E-06	-4.91E-07
Dibenz(a,h)anthracene	7.31E-06	1.83E-06	5.67E-06	1.42E-06	-1.64E-06	-4.10E-07
Benzo(g,h,I)perylene	1.17E-05	2.94E-06	9.11E-06	2.28E-06	-2.64E-06	-6.59E-07
Total PAH	2.13E+00	5.32E-01	3.47E-03	8.68E-04	-2.12E+00	-5.31E-01
Total HAPs		0.008		0.006		-0.002

Potential Emission Calculations

Hospital Boiler Diesel Emissions

Emission Point No.	Hos Boiler
Fuel Type	Distillate #2
Fuel usage Boiler 1-3 (MMBTU/hr)	5.23
Fuel usage Boiler 4 (MMBTU/hr)	1.05
BTU/gal distillate fuel	140,000
Max Gallons/hr (5.23 MMBTU boiler)	37.36
Max Gallons/hr (0.83 MMBTU boiler)	7.50
Maximum annual operating hours	8,760

Total for all three boilers

Pollutant	CAS No.	Emission Factor ($lb/10^3$ gal)	Boilers 1-3 (5.23 MMBTU/hr) Uncontrolled Potential to Emit			Boiler 4 (1.05 MMBTU/hr) Uncontrolled Potential to Emit			Combined (all 4 boilers) Uncontrolled Potential to Emit		
			Emission Rate (lb/hr)	Emission Rate (lb/yr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (lb/yr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (lb/yr)	Emission Rate (ton/yr)
Total Particulate Matter (PM)[1,2]		1	0.11	982	0.49	0.0037	32	0.016	0.116	1,014	0.51
Total Particulate Matter ($PM_{2.5}$)[1]		0.3	0.03	245	0.12	0.0009	8	0.004	0.029	254	0.13
Particulate Matter (PM_{10})[1,2]		1	0.11	982	0.49	0.0037	32	0.016	0.116	1,014	0.51
Sulfur Oxides (SO_2)[3,4]		71.000	7.96	69,717	34.86	0.2614	2,290	1.145	8.220	72,007	36.00
Nitrogen Oxides (NOx)[4]		20	2.24	19,639	9.82	0.0736	645	0.323	2.316	20,284	10.14
Carbon Monoxide (CO)[4]		5	0.56	4,910	2.45	0.0184	161	0.081	0.579	5,071	2.54
VOC[5]		0.252	0.03	247	0.12	0.0009	8	0.004	0.029	256	0.13

[1] Emission factors from AP-42 5th Edition Section 1.3 Table 1.3-6 (May 2010)

[2] Assumed PM = PM10

[3] SOX emission factor = 142S where S is the percent sulfur content in the diesel fuel. At 0.5%, S = 0.5

[4] Emission factors from AP-42 5th Edition Section 1.3 Table 1.3-1 (May 2010)

[5] Emission factors from AP-42 5th Edition Section 1.3 Table 1.3-3 (May 2010)

Potential Emission Calculations

Hospital Boiler NG Emissions

Emission Point No.	Hos Boiler
Fuel Type	Natural Gas
Fuel usage Boiler 1-3 (MMBTU/hr)	5.23
Fuel usage Boiler 4 (MMBTU/hr)	1.05
BTU/gal natural gas	1,020
Max ft³/hr (5.23 MMBTU boiler)	5,128
Max ft³/hr (1.05 MMBTU boiler)	1,029
Max ft³/yr (5.23 MMBTU boiler)	44,925,059
Max ft³/yr (1.05 MMBTU boiler)	9,017,647
Maximum annual operating hours	8,760

Total for all three boilers

			Boilers 1-3 (5.23 MMBTU/hr)			Boiler 4 (1.05 MMBTU/hr)			Combined (all 4 boilers)		
			Uncontrolled Potential to Emit			Uncontrolled Potential to Emit			Uncontrolled Potential to Emit		
Pollutant	CAS No.	Emission Factor (lb/10^6 scf)	Emission Rate (lb/hr)	Emission Rate (lb/yr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (lb/yr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (lb/yr)	Emission Rate (ton/yr)
Total Particulate Matter (PM)[1,2]		7.6	0.12	1,024	0.51	0.0005	5	0.002	0.117	1,029	0.51
Total Particulate Matter ($PM_{2.5}$)[1,2]		7.6	0.12	1,024	0.51	0.0005	5	0.002	0.117	1,029	0.51
Particulate Matter (PM_{10})[1,2]		7.6	0.12	1,024	0.51	0.0005	5	0.002	0.117	1,029	0.51
Sulfur Oxides (SO_2) [1]		0.6	0.01	81	0.040	0.00004	0.4	0.0002	0.009	81	0.041
Nitrogen Oxides (NOx)[3]		100	1.54	13,478	6.74	0.0069	61	0.030	1.545	13,538	6.77
Carbon Monoxide (CO)[3]		84	1.29	11,321	5.66	0.0058	51	0.026	1.298	11,372	5.69
VOC[1]		5.5	0.08	741	0.37	0.0004	3	0.002	0.085	745	0.37

[1] Emission factors from AP-42 5th Edition Section 1.4 Table 1.4-2 (July 1998)

[2] Assumed Total PM = PM10 = PM2.5

[3] Emission factors from AP-42 5th Edition Section 1.4 Table 1.4-1 (July 1998), Small Boiler (<100 MMBTU/hr)

GHG Emissions	5.23 MMBTU Boiler (Individual Boiler)			1.05 MMBTU Boiler		
Compound [4]	Emissions (metric tons)	GWP	CO2e	Emissions (metric tons)	GWP	CO2e
CO_2	2429.57	1	2429.565	487.68	1	487.678
CH_4	0.0458	21	0.962	0.0092	21	0.193
N_2O	0.00458	310	1.421	0.00092	310	0.285
Total	2429.62		2431.95	487.69		488.16

		5.23 MMBTU	1.05 MMBTU
For CO2, Use Equation C-1 from 40 CFR 98 Subpart C:			
CO2 = 1x10-3 x Fuel x HHV x EF			
CO2 = Annual CO2 mass emissions in Metric Tons	=	2429.57	487.68
Fuel = Volume of fuel used (standard cubic feet)	=	44,925,059	9,017,647
HHV = High Heat Value from Table C-1 (mmBTU/scf)	=	0.00102	0.00102
EFCO2 = Emission factor (kg/mmBTU)	=	53.02	53.02
For CH4 and N2O, Use Equation C-8 from 40 CFR 98 Subpart C:			
CH4, N2O = 1x10-3 x Fuel x HHV x EF			
CH4 = Annual CH4 mass emissions in Metric Tons	=	0.0458	0.0092
N2O = Annual N2O mass emissions in Metric Tons	=	0.00458	0.00092
Fuel = Volume of fuel used (standard cubic feet)	=	44,925,059	9,017,647
HHV = High Heat Value from Table C-1 (mmBTU/scf)	=	0.00102	0.00102
EFCH4 = Emission factor (kg/mmBTU)	=	1.00E-03	1.00E-03
EFN2O = Emission factor (kg/mmBTU)	=	1.00E-04	1.00E-04

Notes

[4] 40 CFR 98.32 - For stationary fuel combustion sources only, report CO2, CH4, and N2O

GWP = Global Warming Potential - 40 CFR 98 Subpart A, Table A-1

Comparison - Removal of Diesel Fuel for Boilers at Hospital (Only use Natural Gas)

Mountain Home AFB

Table 1 - Currently Permitted Emissions (all 4 boilers)

Pollutant	Diesel Emission Rate (Individual Boilers)				Natural Gas Emission Rate (Individual Boilers)				Worst Case	
	5.23 MMBtu		1.05 MMBtu		5.23 MMBtu		1.05 MMBtu			
	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)
Total Particulate Matter (PM)	0.037	0.164	**0.004**	**0.016**	**0.039**	**0.171**	0.0005	0.0023	**0.121**	**0.528**
Total Particulate Matter ($PM_{2.5}$)	0.009	0.041	**0.001**	**0.004**	**0.039**	**0.171**	0.0005	0.0023	**0.118**	**0.516**
Particulate Matter (PM_{10})	0.037	0.164	**0.004**	**0.016**	**0.039**	**0.171**	0.0005	0.0023	**0.121**	**0.528**
Sulfur Oxides (SO_2)	**2.653**	**11.620**	**0.261**	**1.145**	0.003	0.013	0.00004	0.0002	**8.220**	**36.004**
Nitrogen Oxides (NOx)	**0.747**	**3.273**	**0.074**	**0.323**	0.513	2.246	0.0069	0.0304	**2.316**	**10.142**
Carbon Monoxide (CO)	0.187	0.818	**0.018**	**0.081**	**0.431**	**1.887**	0.0058	0.0255	**1.311**	**5.741**
VOC	0.009	0.041	**0.001**	**0.004**	**0.028**	**0.124**	0.0004	0.0017	**0.086**	**0.375**

Table 2 - Removal of Diesel Emissions

Pollutant	Diesel Emission Rate				Total Emissions	
	5.23 MMBtu		1.05 MMBtu			
	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)
Total Particulate Matter (PM)	0.037	0.164	0.004	0.016	**0.116**	**0.507**
Total Particulate Matter ($PM_{2.5}$)	0.009	0.041	0.001	0.004	**0.029**	**0.127**
Particulate Matter (PM_{10})	0.037	0.164	0.004	0.016	**0.116**	**0.507**
Sulfur Oxides (SO_2)	2.653	11.620	0.261	1.145	**8.220**	**36.004**
Nitrogen Oxides (NOx)	0.747	3.273	0.074	0.323	**2.316**	**10.142**
Carbon Monoxide (CO)	0.187	0.818	0.018	0.081	**0.579**	**2.535**
VOC	0.009	0.041	0.001	0.004	**0.029**	**0.128**

Table 3 - New Emissions (Natural Gas Only)

Pollutant	Natural Gas Emission Rate (Individual Boilers)				Total Emissions		Net Change in Emissions	
	5.23 MMBtu		1.05 MMBtu					
	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)
Total Particulate Matter (PM)	0.039	0.171	0.0005	0.002	0.117	0.514	(0.003)	(0.014)
Total Particulate Matter ($PM_{2.5}$)	0.039	0.171	0.0005	0.002	0.117	0.514	(0.000)	(0.002)
Particulate Matter (PM_{10})	0.039	0.171	0.0005	0.002	0.117	0.514	(0.003)	(0.014)
Sulfur Oxides (SO_2)	0.003	0.013	0.00004	0.000	0.009	0.041	(8.211)	(35.963)
Nitrogen Oxides (NOx)	0.513	2.246	0.0069	0.030	1.545	6.769	(0.770)	(3.373)
Carbon Monoxide (CO)	0.431	1.887	0.0058	0.026	1.298	5.686	(0.013)	(0.055)
VOC	0.028	0.124	0.0004	0.002	0.085	0.372	(0.0005)	(0.002)

Potential Emission Calculations

Hospital Generator NG Emissions

Emission Point No.	Hos Boiler
Fuel Type	Natural Gas
Fuel usage Boiler 1-3 (MMBTU/hr)	5.23
Fuel usage Boiler 4 (MMBTU/hr)	1.05
BTU/gal natural gas	1,020
Max ft^3/hr (5.23 MMBTU boiler)	5,128
Max ft^3/hr (1.05 MMBTU boiler)	1,029
Max ft^3/yr (5.23 MMBTU boiler)	44,925,059
Max ft^3/yr (1.05 MMBTU boiler)	9,017,647
Maximum annual operating hours	8,760

		5.23 MMBTU Boiler			1.05 MMBTU Boiler			Total (4 Boilers)		
		Uncontrolled Potential to Emit			Uncontrolled Potential to Emit			Uncontrolled Potential to Emit		
TAP/HAP [1]	Emission Factor ($lb/10^6$ scf)	Emission Rate (lb/hr)	Emission Rate (lb/yr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (lb/yr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (lb/yr)	Emission Rate (ton/yr)
2-Methylnaphthalene	2.40E-05	1.23E-07	1.08E-03	5.39E-07	2.47E-08	2.16E-04	1.08E-07	3.94E-07	3.45E-03	1.73E-06
3-Methylchloranthrene	1.80E-06	9.23E-09	8.09E-05	4.04E-08	1.85E-09	1.62E-05	8.12E-09	2.95E-08	2.59E-04	1.29E-07
7,12-Dimethylbenz(a)anthracene	1.60E-05	8.21E-08	7.19E-04	3.59E-07	1.65E-08	1.44E-04	7.21E-08	2.63E-07	2.30E-03	1.15E-06
Acenaphthene	1.80E-06	9.23E-09	8.09E-05	4.04E-08	1.85E-09	1.62E-05	8.12E-09	2.95E-08	2.59E-04	1.29E-07
Acenaphthylene	1.80E-06	9.23E-09	8.09E-05	4.04E-08	1.85E-09	1.62E-05	8.12E-09	2.95E-08	2.59E-04	1.29E-07
Anthracene	2.40E-06	1.23E-08	1.08E-04	5.39E-08	2.47E-09	2.16E-05	1.08E-08	3.94E-08	3.45E-04	1.73E-07
Benz(a)anthracene	1.80E-06	9.23E-09	8.09E-05	4.04E-08	1.85E-09	1.62E-05	8.12E-09	2.95E-08	2.59E-04	1.29E-07
Benzene (HAP)	2.10E-03	1.08E-05	9.43E-02	4.72E-05	2.16E-06	1.89E-02	9.47E-06	3.45E-05	3.02E-01	1.51E-04
Benzo(a)pyrene	1.20E-06	6.15E-09	5.39E-05	2.70E-08	1.24E-09	1.08E-05	5.41E-09	1.97E-08	1.73E-04	8.63E-08
Benzo(b)fluoranthene	1.80E-06	9.23E-09	8.09E-05	4.04E-08	1.85E-09	1.62E-05	8.12E-09	2.95E-08	2.59E-04	1.29E-07
Benzo(g,h,i)perylene	1.20E-06	6.15E-09	5.39E-05	2.70E-08	1.24E-09	1.08E-05	5.41E-09	1.97E-08	1.73E-04	8.63E-08
Benzo(k)fluoranthene	1.80E-06	9.23E-09	8.09E-05	4.04E-08	1.85E-09	1.62E-05	8.12E-09	2.95E-08	2.59E-04	1.29E-07
Butane	2.10E+00	1.08E-02	9.43E+01	4.72E-02	2.16E-03	1.89E+01	9.47E-03	3.45E-02	3.02E+02	1.51E-01
Chrysene	1.80E-06	9.23E-09	8.09E-05	4.04E-08	1.85E-09	1.62E-05	8.12E-09	2.95E-08	2.59E-04	1.29E-07
Dibenzo(a,h)anthracene	1.20E-06	6.15E-09	5.39E-05	2.70E-08	1.24E-09	1.08E-05	5.41E-09	1.97E-08	1.73E-04	8.63E-08
Dichlorobenzene	1.20E-03	6.15E-06	5.39E-02	2.70E-05	1.24E-06	1.08E-02	5.41E-06	1.97E-05	1.73E-01	8.63E-05
Ethane	3.10E+00	1.59E-02	1.39E+02	6.96E-02	3.19E-03	2.80E+01	1.40E-02	5.09E-02	4.46E+02	2.23E-01
Fluoranthene	3.00E-06	1.54E-08	1.35E-04	6.74E-08	3.09E-09	2.71E-05	1.35E-08	4.92E-08	4.31E-04	2.16E-07
Fluorene	2.80E-06	1.44E-08	1.26E-04	6.29E-08	2.88E-09	2.52E-05	1.26E-08	4.60E-08	4.03E-04	2.01E-07
Formaldehyde	7.50E-02	3.85E-04	3.37E+00	1.68E-03	7.72E-05	6.76E-01	3.38E-04	1.23E-03	1.08E+01	5.39E-03
Hexane	1.80E+00	9.23E-03	8.09E+01	4.04E-02	1.85E-03	1.62E+01	8.12E-03	2.95E-02	2.59E+02	1.29E-01
Indeno(1,2,3-cd)pyrene	1.80E-06	9.23E-09	8.09E-05	4.04E-08	1.85E-09	1.62E-05	8.12E-09	2.95E-08	2.59E-04	1.29E-07
Naphthalene	6.10E-04	3.13E-06	2.74E-02	1.37E-05	6.28E-07	5.50E-03	2.75E-06	1.00E-05	8.77E-02	4.39E-05
Pentane	2.60E+00	1.33E-02	1.17E+02	5.84E-02	2.68E-03	2.34E+01	1.17E-02	4.27E-02	3.74E+02	1.87E-01
Phenanathrene	1.70E-05	8.72E-08	7.64E-04	3.82E-07	1.75E-08	1.53E-04	7.67E-08	2.79E-07	2.44E-03	1.22E-06
Propane	1.60E+00	8.21E-03	7.19E+01	3.59E-02	1.65E-03	1.44E+01	7.21E-03	2.63E-02	2.30E+02	1.15E-01
Pyrene	3.00E-06	1.54E-08	1.35E-04	6.74E-08	3.09E-09	2.71E-05	1.35E-08	4.92E-08	4.31E-04	2.16E-07
Toluene	3.40E-03	1.74E-05	1.53E-01	7.64E-05	3.50E-06	3.07E-02	1.53E-05	5.58E-05	4.89E-01	2.44E-04
Metals										
Arsenic	2.00E-04	1.03E-06	8.99E-03	4.49E-06	2.06E-07	1.80E-03	9.02E-07	3.28E-06	2.88E-02	1.44E-05
Barium	4.40E-03	2.26E-05	1.98E-01	9.88E-05	4.53E-06	3.97E-02	1.98E-05	7.22E-05	6.33E-01	3.16E-04
Beryllium	1.20E-05	6.15E-08	5.39E-04	2.70E-07	1.24E-08	1.08E-04	5.41E-08	1.97E-07	1.73E-03	8.63E-07
Cadmium	1.10E-03	5.64E-06	4.94E-02	2.47E-05	1.13E-06	9.92E-03	4.96E-06	1.81E-05	1.58E-01	7.91E-05
Chromium	1.40E-03	7.18E-06	6.29E-02	3.14E-05	1.44E-06	1.26E-02	6.31E-06	2.30E-05	2.01E-01	1.01E-04
Cobalt	8.40E-05	4.31E-07	3.77E-03	1.89E-06	8.65E-08	7.57E-04	3.79E-07	1.38E-06	1.21E-02	6.04E-06
Copper	8.50E-04	4.36E-06	3.82E-02	1.91E-05	8.75E-07	7.67E-03	3.83E-06	1.40E-05	1.22E-01	6.11E-05
Manganese	3.80E-04	1.95E-06	1.71E-02	8.54E-06	3.91E-07	3.43E-03	1.71E-06	6.24E-06	5.46E-02	2.73E-05
Mercury	2.60E-04	1.33E-06	1.17E-02	5.84E-06	2.68E-07	2.34E-03	1.17E-06	4.27E-06	3.74E-02	1.87E-05
Molybdenum	1.10E-03	5.64E-06	4.94E-02	2.47E-05	1.13E-06	9.92E-03	4.96E-06	1.81E-05	1.58E-01	7.91E-05
Nickel	2.10E-03	1.08E-05	9.43E-02	4.72E-05	2.16E-06	1.89E-02	9.47E-06	3.45E-05	3.02E-01	1.51E-04
Selenium	2.40E-05	1.23E-07	1.08E-03	5.39E-07	2.47E-08	2.16E-04	1.08E-07	3.94E-07	3.45E-03	1.73E-06
Vanadium	2.30E-03	1.18E-05	1.03E-01	5.17E-05	2.37E-06	2.07E-02	1.04E-05	3.78E-05	3.31E-01	1.65E-04
Zinc	2.90E-02	1.49E-04	1.30E+00	6.51E-04	2.99E-05	2.62E-01	1.31E-04	4.76E-04	4.17E+00	2.08E-03
TOTAL HAPs										0.14

[1] AP 42 section 1.4 Table 1.4-3. July 1998

Appendix D

Cummins Manufacturer Data Sheets

Model: DQFAC
Frequency: 60
Fuel type: Diesel
KW rating: 900 standby
818 prime
Emissions level: EPA NSPS Stationary Emergency Tier 2

Generator set data sheet

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Exhaust emission data sheet:	EDS-1062
Exhaust emission compliance sheet:	EPA-1096
Sound performance data sheet:	MSP-1037
Cooling performance data sheet:	MCP-155
Prototype test summary data sheet:	PTS-266
Standard set-mounted radiator cooling outline:	0500-4391
Optional set-mounted radiator cooling outline:	
Optional heat exchanger cooling outline:	
Optional remote radiator cooling outline:	0500-4390

Fuel consumption	Standby				Prime				Continuous
	kW (kVA)				kW (kVA)				
Ratings	900 (1125)				818 (1023)				
Load	1/4	1/2	3/4	Full	1/4	1/2	3/4	Full	Full
US gph	17.3	32.1	47.5	63.9	16.8	29.4	43.3	57.7	
L/hr	65.5	121.5	179.8	241.9	63.6	111.3	163.9	218.4	

Engine	Standby rating	Prime rating	Continuous rating
Engine manufacturer	Cummins Inc.		
Engine model	QST30-G5 NR2		
Configuration	Cast iron, V 12 cylinder		
Aspiration	Turbocharged and low temperature aftercooled		
Gross engine power output, kWm (bhp)	1112 (1490)	1007 (1350)	
BMEP at set rated load, kPa (psi)	2155 (313)	1960 (284)	
Bore, mm (in)	140 (5.51)		
Stroke, mm (in)	165 (6.5)		
Rated speed, rpm	1800		
Piston speed, m/s (ft/min)	9.91 (1950)		
Compression ratio	14.7:1		
Lube oil capacity, L (qt)	154 (162.8)		
Overspeed limit, rpm	2100 ±50		
Regenerative power, kW	82		

Fuel flow	
Maximum fuel flow, L/hr (US gph)	570 (150)
Maximum fuel inlet restriction, kPa (in Hg)	27 (8.0)
Maximum fuel inlet temperature, °C (°F)	66 (150)

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Air	Standby rating	[illegible]	Continuous rating
Combustion air, m^3/min (scfm)	81 (2880)	74 (2657)	
Maximum air cleaner restriction, kPa (in H_2O)	6.2 (25)		
Alternator cooling air, m^3/min (cfm)	204 (7300)		

Exhaust			
Exhaust flow at set rated load, m^3/min (cfm)	195 (6950)	185 (6600)	
Exhaust temperature, °C (°F)	463 (866)	447 (836)	
Maximum back pressure, kPa (in H_2O)	6.8 (27)		

Standard set-mounted radiator cooling			
Ambient design, °C (°F)	50 (122)		
Fan load, kW_m (HP)	43 (57)		
Coolant capacity (with radiator), L (US gal)	201 (53.2)		
Cooling system air flow, m^3/min (scfm)	952 (34000)		
Total heat rejection, MJ/min (Btu/min)	43.9 (41660)	39.8 (37728)	
Maximum cooling air flow static restriction, kPa (in H_2O)	0.12 (0.5)		
Maximum fuel return line restriction kPa (in Hg)	67.5 (20)		

Optional set-mounted radiator cooling			
Ambient design, °C (°F)			
Fan load, kW_m (HP)			
Coolant capacity (with radiator), L (US gal)			
Cooling system air flow, m^3/min (scfm)			
Total heat rejection, MJ/min (Btu/min)			
Maximum cooling air flow static restriction, kPa (in H_2O)			
Maximum fuel return line restriction, kPa (in Hg)			

Optional heat exchanger cooling			
Set coolant capacity, L (US gal)			
Heat rejected, jacket water circuit, MJ/min (Btu/min)			
Heat rejected, aftercooler circuit, MJ/min (Btu/min)			
Heat rejected, fuel circuit, MJ/min (Btu/min)			
Total heat radiated to room, MJ/min (Btu/min)			
Maximum raw water pressure, jacket water circuit, kPa (psi)			
Maximum raw water pressure, aftercooler circuit, kPa (psi)			
Maximum raw water pressure, fuel circuit, kPa (psi)			
Maximum raw water flow, jacket water circuit, L/min (US gal/min)			
Maximum raw water flow, aftercooler circuit, L/min (US gal/min)			
Maximum raw water flow, fuel circuit, L/min (US gal/min)			
Minimum raw water flow at 27 °C (80 °F) inlet temp, jacket water circuit, L/min (US gal/min)			
Minimum raw water flow at 27 °C (80 °F) inlet temp, aftercooler circuit, L/min (US gal/min)			
Minimum raw water flow at 27 °C (80 °F) inlet temp, fuel circuit, L/min (US gal/min)			
Raw water delta P at min flow, jacket water circuit, kPa (psi)			
Raw water delta P at min flow, after cooler circuit, kPa (psi)			
Raw water delta P at min flow, fuel circuit, kPa (psi)			
Maximum jacket water outlet temp, °C (°F)			
Maximum aftercooler inlet temp, °C (°F)			
Maximum aftercooler inlet temp at 25 °C (77 °F) ambient, °C (°F)			
Maximum fuel return line restriction, kPa (in Hg)			

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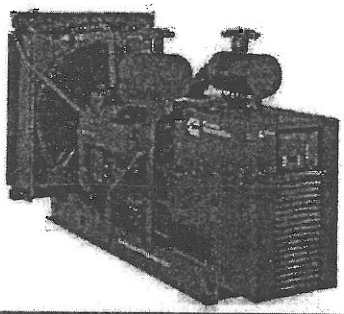
Diesel generator set
QST30 series engine



> Specification sheet
680 kW - 1000 kW 60 Hz

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Description

Cummins Power Generation commercial generator sets are fully integrated power generation systems providing optimum performance, reliability and versatility for stationary standby and prime power applications. Codes or standards compliance may not be available with all model configurations – consult factory for availability.

This generator set is designed in facilities certified to ISO 9001 and manufactured in facilities certified to ISO 9001 or ISO 9002.

The Prototype Test Support (PTS) program verifies the performance integrity of the generator set design. Cummins Power Generation products bearing the PTS symbol meet the prototype test requirements of NFPA 110 for Level 1 systems.

All low voltage models are CSA certified to product class 4215-01.

The generator set is available listed to UL 2200, Stationary Engine Generator Assemblies for all 60 Hz low voltage models. The PowerCommand control is Listed to UL 508 - Category NITW7 for U.S. and Canadian usage. Circuit breaker assemblies are UL 489 Listed for 100% continuous operation and also UL 869A Listed Service Equipment.

U.S. EPA Engine certified to Stationary Emergency U.S. EPA New Source Performance Standards, 40 CFR 60 subpart IIII Tier 2 exhaust emission levels. U.S. applications must be applied per this EPA regulation.

Features

Cummins® heavy-duty engine - Rugged 4-cycle, industrial diesel delivers reliable power, low emissions and fast response to load changes.

Alternator - Several alternator sizes offer selectable motor starting capability with low reactance 2/3 pitch windings, low waveform distortion with non-linear loads and fault clearing short-circuit capability.

Permanent magnet generator (PMG) - Offers enhanced motor starting and fault clearing short-circuit capability.

Control system - The PowerCommand® electronic control is standard equipment and provides total genset system integration including automatic remote starting/stopping, precise frequency and voltage regulation, alarm and status message display, AmpSentry™ protection, output metering, auto-shutdown at fault detection and NFPA 110 Level 1 compliance.

Cooling system - Standard integral set-mounted radiator system, designed and tested for rated ambient temperatures, simplifies facility design requirements for rejected heat.

NFPA - The genset accepts full rated load in a single step in accordance with NFPA 110 for Level 1 systems.

Warranty and service - Backed by a comprehensive warranty and worldwide distributor network.

	Standby rating		Prime rating		Continuous rating		Data sheets	
Model	60 Hz kW (kVA)	50 Hz kW (kVA)	60 Hz kW (kVA)	50 Hz kW (kVA)	60 Hz kW (kVA)	50 Hz kW (kVA)	60 Hz	50 Hz
DQFAA	750 (938)		680 (850)				D-3329	
DQFAB	800 (1000)		725 (907)				D-3330	
DQFAC	900 (1125)		818 (1023)				D-3331	
DQFAD	1000 (1250)		900 (1125)				D-3332	

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S-1508h (6/11)

Generator set specifications

Governor regulation class	ISO8328 Part 1 Class G3
Voltage regulation, no load to full load	± 0.5%
Random voltage variation	± 0.5%
Frequency regulation	Isochronous
Random frequency variation	± 0.25%
Radio frequency emissions compliance	IEC 801.2 through IEC 801.5; MIL STD 461C, Part 9

Engine specifications

Bore	140 mm (5.51 in)
Stroke	165.0 mm (6.5 in)
Displacement	30.5 litres (1860 in³)
Configuration	Cast iron, V 12 cylinder
Battery capacity	1800 amps minimum at ambient temperature of -18 °C to 0 °C (0 °F to 32 °F)
Battery charging alternator	35 amps
Starting voltage	24 volt, negative ground
Fuel system	Direct injection: number 2 diesel fuel, fuel filter, automatic electric fuel shutoff
Fuel filter	Triple element, 10 micron filtration, spin-on fuel filter with water separator
Air cleaner type	Dry replaceable element
Lube oil filter type(s)	Four spin-on, combination full flow filter and bypass filters
Standard cooling system	High ambient radiator

Alternator specifications

Design	Brushless, 4 pole, drip proof revolving field
Stator	2/3 pitch
Rotor	Single bearing, flexible discs
Insulation system	Class H on low and medium voltage, Class F on high voltage
Standard temperature rise	150 °C standby at 40 °C
Exciter type	PMG (permanent magnet generator)
Phase rotation	A (U), B (V), C (W)
Alternator cooling	Direct drive centrifugal blower fan
AC waveform total harmonic distortion	< 5% no load to full linear load, < 3% for any single harmonic
Telephone influence factor (TIF)	< 50 per NEMA MG1-22.43
Telephone harmonic factor (THF)	< 3

Available voltages

60 Hz line-neutral/line-line				50 Hz line-neutral/line-line			
• 120/208	• 220/380	• 240/416	• 347/600				
• 139/240	• 230/400	• 277/480					

* Note: Consult factory for other voltages.

Generator set options and accessories

Engine
- ☐ 208/240/480 V coolant heater for ambient above 4.5 °C (40 °F)
- ☐ 208/240/480 V coolant heater for ambient below 4.5 °C (40 °F)

Control panel
- ☐ 120/240 V 100 W control anti-condensation heater
- ☐ Paralleling configuration
- ☐ Remote fault signal package
- ☐ Run relay package

Alternator
- ☐ 80 °C rise
- ☐ 105 °C rise
- ☐ 125 °C rise
- ☐ 120/240 V 300 W, anti-condensation heater
- ☐ Temperature sensor - RTDs, 2/phase
- ☐ Temperature sensor – alternator bearing RTD
- ☐ Differential current transformers

Exhaust system
- ☐ Industrial grade exhaust silencer
- ☐ Residential grade exhaust silencer
- ☐ Critical grade exhaust silencer

Cooling system
- ☐ Remote radiator

Generator set
- ☐ AC entrance box
- ☐ Battery

- ☐ Battery rack with hold-down - floor standing
- ☐ Circuit breaker - set mounted
- ☐ Disconnect switch - set mounted
- ☐ PowerCommand Network
- ☐ Remote annunciator panel
- ☐ Spring isolators
- ☐ 2 year warranty
- ☐ 5 year warranty
- ☐ 10 year major components warranty

* Note: Some options may not be available on all models - consult factory for availability.

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Appendix E

Federal Regulatory Review, NSPS 40 CFR 60, Subpart IIII

Title 40: Protection of Environment
Part 60, Subpart IIII—Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

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;

The engine manufacturer is Cummins and model year 2011. Model DQFAC, 818 kW rating, EPA Tier 2.

Emission Standards for Manufacturers

§ 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 non-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.

818 kW rated emergency prime generator with total displacement = 30.5 liters/ 12 cylinders = 2.54 liter/cylinder. (See manufacturer data sheet in PTC application)

Comply with emission standards (Table 1 per 40 CFR 89.112): NHMC + NOx = 6.4 g/kw-hr; CO = 3.5 g/kw-hr; PM= 0.20 g/kw-hr (See emission calculations for emergency generators in PTC application)

(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 ICE with a displacement of greater than or equal to 30 liters per cylinder must meet the requirements in paragraphs (d)(1) and (2) of this section.

(1) Reduce NO_x emissions by 90 percent or more, or limit the emissions of NO_x in the stationary CI internal combustion engine exhaust to 1.6 grams per KW-hour (1.2 grams per HP-hour).

(2) Reduce PM emissions by 60 percent or more, or limit the emissions of PM in the stationary CI internal combustion engine exhaust to 0.15 g/KW-hr (0.11 g/HP-hr).

§ 60.4202 What emission standards must I meet for emergency engines if I am a stationary CI internal combustion engine manufacturer?

(a) Stationary CI internal combustion engine manufacturers must certify their 2007 model year and later emergency stationary CI ICE with a maximum engine power less than or equal to 2,237 KW (3,000 HP) and a displacement of less than 10 liters per cylinder that are not fire pump engines to the emission standards specified in paragraphs (a)(1) through (2) of this section.

(1) For engines with a maximum engine power less than 37 KW (50 HP):

(i) The certification emission standards for new nonroad CI engines for the same model year and maximum engine power in 40 CFR 89.112 and 40 CFR 89.113 for all pollutants for model year 2007 engines, and

(ii) The certification emission standards for new nonroad CI engines in 40 CFR 1039.104, 40 CFR 1039.105, 40 CFR 1039.107, 40 CFR 1039.115, and table 2 to this subpart, for 2008 model year and later engines.

(2) For engines with a maximum engine power greater than or equal to 37 KW (50 HP), the certification emission standards for new nonroad CI engines for the same model year and maximum engine power in 40 CFR 89.112 and 40 CFR 89.113 for all pollutants beginning in model year 2007.

818 kW rated emergency prime generator with total displacement = 30.5 liters/ 12 cylinders = 2.54 liter/cylinder. (See manufacturer data sheet in PTC application)

Comply with emission standards (Table 1 per 40 CFR 89.112): NHMC + NOx = 6.4 g/kw-hr; CO = 3.5 g/kw-hr; PM= 0.20 g/kw-hr (See emission calculations for emergency generators in PTC application)

(b) Stationary CI internal combustion engine manufacturers must certify their 2007 model year and later emergency stationary CI ICE with a maximum engine power greater than 2,237 KW (3,000 HP) and a displacement of less than 10 liters per cylinder that are not fire pump engines to the emission standards specified in paragraphs (b)(1) through (2) of this section.

(1) For 2007 through 2010 model years, the emission standards in table 1 to this subpart, for all pollutants, for the same maximum engine power.

(2) For 2011 model year and later, the certification emission standards for new nonroad CI engines for engines of the same model year and maximum engine power in 40 CFR 89.112 and 40 CFR 89.113 for all pollutants.

(c) Stationary CI internal combustion engine manufacturers must certify their 2007 model year and later 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 to the certification emission standards for new marine CI engines in 40 CFR 94.8, as applicable, for all pollutants, for the same displacement and maximum engine power.

(d) Beginning with the model years in table 3 to this subpart, stationary CI internal combustion engine manufacturers must certify their fire pump stationary CI ICE to the emission standards in table 4 to this subpart, for all pollutants, for the same model year and NFPA nameplate power.

§ 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 according to the manufacturer's written instructions or procedures developed by the owner or operator that are approved by the engine manufacturer, over the entire life of the engine.

Fuel Requirements for Owners and Operators

§ 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.

The hospital emergency generators will be required to use ultra low sulfur diesel fuel with a maximum sulfur content of 15 ppmV.

(c) Owners and operators of pre-2011 model year stationary CI ICE subject to this subpart may petition the Administrator for approval to use remaining non-compliant fuel that does not meet the fuel requirements of paragraphs (a) and (b) of this section beyond the dates required for the purpose of using up existing fuel inventories. If approved, the petition will be valid for a period of up to 6 months. If additional time is needed, the owner or operator is required to submit a new petition to the Administrator.

(d) Owners and operators of pre-2011 model year stationary CI ICE subject to this subpart that are located in areas of Alaska not accessible by the Federal Aid Highway System may petition the Administrator for approval to use any fuels mixed with used lubricating oil that do not meet the fuel requirements of paragraphs (a) and (b) of this section. Owners and operators must demonstrate in their petition to the Administrator that there is no other place to use the lubricating oil. If approved, the petition will be valid for a period of up to 6 months. If additional time is needed, the owner or operator is required to submit a new petition to the Administrator.

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

Other Requirements for Owners and Operators

§ 60.4208 What is the deadline for importing or installing stationary CI ICE produced in the previous model year?

(a) After December 31, 2008, owners and operators may not install stationary CI ICE (excluding fire pump engines) that do not meet the applicable requirements for 2007 model year engines.

(b) After December 31, 2009, owners and operators may not install stationary CI ICE with a maximum engine power of less than 19 KW (25 HP) (excluding fire pump engines) that do not meet the applicable requirements for 2008 model year engines.

(c) After December 31, 2014, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power of greater than or equal to 19 KW (25 HP) and less than 56 KW (75 HP) that do not meet the applicable requirements for 2013 model year non-emergency engines.

(d) After December 31, 2013, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power of greater than or equal to 56 KW (75 HP) and less than 130 KW (175 HP) that do not meet the applicable requirements for 2012 model year non-emergency engines.

(e) After December 31, 2012, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power of greater than or equal to 130 KW (175 HP), including those above 560 KW (750 HP), that do not meet the applicable requirements for 2011 model year non-emergency engines.

(f) After December 31, 2016, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power of greater than or equal to 560 KW (750 HP) that do not meet the applicable requirements for 2015 model year non-emergency engines.

(g) In addition to the requirements specified in §§60.4201, 60.4202, 60.4204, and 60.4205, it is prohibited to import stationary CI ICE with a displacement of less than 30 liters per cylinder that do not meet the applicable requirements

specified in paragraphs (a) through (f) of this section after the dates specified in paragraphs (a) through (f) of this section.

(h) The requirements of this section do not apply to owners or operators of stationary CI ICE that have been modified, reconstructed, and do not apply to engines that were removed from one existing location and reinstalled at a new location.

§ 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, you must install a non-resettable hour meter prior to startup of the engine.

Non-resettable hour meters will be installed on both emergency generators.

(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.

Compliance Requirements

§ 60.4210 What are my compliance requirements if I am a stationary CI internal combustion engine manufacturer?

(a) Stationary CI internal combustion engine manufacturers must certify their stationary CI ICE with a displacement of less than 10 liters per cylinder to the emission standards specified in §60.4201(a) through (c) and §60.4202(a), (b) and (d) using the certification procedures required in 40 CFR part 89, subpart B, or 40 CFR part 1039, subpart C, as applicable, and must test their engines as specified in those parts. For the purposes of this subpart, engines certified to the standards in table 1 to this subpart shall be subject to the same requirements as engines certified to the standards in 40 CFR part 89. For the purposes of this subpart, engines certified to the standards in table 4 to this subpart shall be subject to the same requirements as engines certified to the standards in 40 CFR part 89, except that engines with NFPA nameplate power of less than 37 KW (50 HP) certified to model year 2011 or later standards shall be subject to the same requirements as engines certified to the standards in 40 CFR part 1039.

(b) Stationary CI internal combustion engine manufacturers must certify their stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder to the emission standards specified in §60.4201(d) and §60.4202(c) using the certification procedures required in 40 CFR part 94 subpart C, and must test their engines as specified in 40 CFR part 94.

(c) Stationary CI internal combustion engine manufacturers must meet the requirements of 40 CFR 1039.120, 40 CFR 1039.125, 40 CFR 1039.130, 40 CFR 1039.135, and 40 CFR part 1068 for engines that are certified to the emission standards in 40 CFR part 1039. Stationary CI internal combustion engine manufacturers must meet the corresponding provisions of 40 CFR part 89 or 40 CFR part 94 for engines that would be covered by that part if they were nonroad (including marine) engines. Labels on such engines must refer to stationary engines, rather than or in addition to nonroad or marine engines, as appropriate. Stationary CI internal combustion engine manufacturers must label their engines according to paragraphs (c)(1) through (3) of this section.

(1) Stationary CI internal combustion engines manufactured from January 1, 2006 to March 31, 2006 (January 1, 2006 to June 30, 2006 for fire pump engines), other than those that are part of certified engine families under the nonroad CI engine regulations, must be labeled according to 40 CFR 1039.20.

(2) Stationary CI internal combustion engines manufactured from April 1, 2006 to December 31, 2006 (or, for fire pump engines, July 1, 2006 to December 31 of the year preceding the year listed in table 3 to this subpart) must be labeled according to paragraphs (c)(2)(i) through (iii) of this section:

(i) Stationary CI internal combustion engines that are part of certified engine families under the nonroad regulations must meet the labeling requirements for nonroad CI engines, but do not have to meet the labeling requirements in 40 CFR 1039.20.

(ii) Stationary CI internal combustion engines that meet Tier 1 requirements (or requirements for fire pumps) under this subpart, but do not meet the requirements applicable to nonroad CI engines must be labeled according to 40 CFR 1039.20. The engine manufacturer may add language to the label clarifying that the engine meets Tier 1 requirements (or requirements for fire pumps) of this subpart.

(iii) Stationary CI internal combustion engines manufactured after April 1, 2006 that do not meet Tier 1 requirements of this subpart, or fire pumps engines manufactured after July 1, 2006 that do not meet the requirements for fire pumps under this subpart, may not be used in the U.S. If any such engines are manufactured in the U.S. after April 1, 2006 (July 1, 2006 for fire pump engines), they must be exported or must be brought into compliance with the appropriate standards prior to initial operation. The export provisions of 40 CFR 1068.230 would apply to engines for export and the manufacturers must label such engines according to 40 CFR 1068.230.

(3) Stationary CI internal combustion engines manufactured after January 1, 2007 (for fire pump engines, after January 1 of the year listed in table 3 to this subpart, as applicable) must be labeled according to paragraphs (c)(3)(i) through (iii) of this section.

(i) Stationary CI internal combustion engines that meet the requirements of this subpart and the corresponding requirements for nonroad (including marine) engines of the same model year and HP must be labeled according to the provisions in part 89, 94 or 1039, as appropriate.

(ii) Stationary CI internal combustion engines that meet the requirements of this subpart, but are not certified to the standards applicable to nonroad (including marine) engines of the same model year and HP must be labeled according to the provisions in part 89, 94 or 1039, as appropriate, but the words "stationary" must be included instead of "nonroad" or "marine" on the label. In addition, such engines must be labeled according to 40 CFR 1039.20.

(iii) Stationary CI internal combustion engines that do not meet the requirements of this subpart must be labeled according to 40 CFR 1068.230 and must be exported under the provisions of 40 CFR 1068.230.

(d) An engine manufacturer certifying an engine family or families to standards under this subpart that are identical to standards applicable under parts 89, 94, or 1039 for that model year may certify any such family that contains both nonroad (including marine) and stationary engines as a single engine family and/or may include any such family containing stationary engines in the averaging, banking and trading provisions applicable for such engines under those parts.

(e) Manufacturers of engine families discussed in paragraph (d) of this section may meet the labeling requirements referred to in paragraph (c) of this section for stationary CI ICE by either adding a separate label containing the information required in paragraph (c) of this section or by adding the words "and stationary" after the word "nonroad" or "marine," as appropriate, to the label.

(f) Starting with the model years shown in table 5 to this subpart, stationary CI internal combustion engine manufacturers must add a permanent label stating that the engine is for stationary emergency use only to each new emergency stationary CI internal combustion engine greater than or equal to 19 KW (25 HP) that meets all the emission standards for emergency engines in §60.4202 but does not meet all the emission standards for non-emergency engines in §60.4201. The label must be added according to the labeling requirements specified in 40 CFR 1039.135(b). Engine manufacturers must specify in the owner's manual that operation of emergency engines is limited to emergency operations and required maintenance and testing.

(g) Manufacturers of fire pump engines may use the test cycle in table 6 to this subpart for testing fire pump engines and may test at the NFPA certified nameplate HP, provided that the engine is labeled as "Fire Pump Applications Only".

(h) Engine manufacturers, including importers, may introduce into commerce uncertified engines or engines certified to earlier standards that were manufactured before the new or changed standards took effect until inventories are depleted, as long as such engines are part of normal inventory. For example, if the engine manufacturers' normal industry practice is to keep on hand a one-month supply of engines based on its projected sales, and a new tier of standards starts to apply for the 2009 model year, the engine manufacturer may manufacture engines based on the normal inventory requirements late in the 2008 model year, and sell those engines for installation. The engine manufacturer may not circumvent the provisions of §§60.4201 or 60.4202 by stockpiling engines that are built before new or changed standards take effect. Stockpiling of such engines beyond normal industry practice is a violation of this subpart.

(i) The replacement engine provisions of 40 CFR 89.1003(b)(7), 40 CFR 94.1103(b)(3), 40 CFR 94.1103(b)(4) and 40 CFR 1068.240 are applicable to stationary CI engines replacing existing equipment that is less than 15 years old.

§ 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 operate and maintain the stationary CI internal combustion engine and control device according to the manufacturer's written instructions or procedures developed by the owner or operator that are approved by the engine manufacturer. In addition, owners and operators may only change those settings that are permitted by the manufacturer. You must also meet the requirements of 40 CFR parts 89, 94 and/or 1068, as they apply to you.

(b) If you are an owner or operator of a pre-2007 model year stationary CI internal combustion engine and must comply with the emission standards specified in §§60.4204(a) or 60.4205(a), or if you are an owner or operator of a CI fire pump engine that is manufactured prior to the model years in table 3 to this subpart and must comply with the emission standards specified in §60.4205(c), you must demonstrate compliance according to one of the methods specified in paragraphs (b)(1) through (5) of this section.

(1) Purchasing an engine certified according to 40 CFR part 89 or 40 CFR part 94, as applicable, for the same model year and maximum engine power. The engine must be installed and configured according to the manufacturer's specifications.

(2) Keeping records of performance test results for each pollutant for a test conducted on a similar engine. The test must have been conducted using the same methods specified in this subpart and these methods must have been followed correctly.

(3) Keeping records of engine manufacturer data indicating compliance with the standards.

(4) Keeping records of control device vendor data indicating compliance with the standards.

(5) Conducting an initial performance test to demonstrate compliance with the emission standards according to the requirements specified in §60.4212, as applicable.

(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 specifications.

(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) Emergency stationary ICE may be operated for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by Federal, State, or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Maintenance checks and readiness testing of such units is limited to 100 hours per year. There is no time limit on the use of emergency stationary ICE in emergency situations. Anyone 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 year. For owners and operators of emergency engines meeting standards under §60.4205 but not §60.4204, any operation other than emergency operation, and maintenance and testing as permitted in this section, is prohibited.

Maintenance and testing hours of operation for each emergency generator will not exceed 100 hr/yr.

Testing Requirements for Owners and Operators

§ 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 (d) of this section.

(a) The performance test must be conducted according to the in-use testing procedures in 40 CFR part 1039, subpart F.

(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.

Notification, Reports, and Records for Owners and Operators

§ 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.