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DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE A Q PROGRAM



woodgrain millwork

**Nampa Facility
Facility ID No. 027-00060
PTC Application**

**Prepared For:
Idaho Department of Environmental Quality
Air Quality Division
1410 N. Hilton
Boise, Idaho 83706**

Prepared by:

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December 2011

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1.0 INTRODUCTION

The Woodgrain Millwork, Inc. (Woodgrain) Nampa Facility Tier II Operating Permit / Permit to Construct renewal application is being submitted in accordance with Idaho air quality regulations in Idaho Administrative Procedure Act (IDAPA) 58.01.01 200 for the renewal of the current operating permit T2-050033. Furthermore, the Nampa facility has seen no change in operations in the past eight years and does not anticipate any operational changes in the near future. Therefore, Woodgrain is requesting to convert all operations to a Permit to Construct.

2.0 GENERAL INFORMATION

Facility: Woodgrain Millwork, Inc
Nampa facility
1201 W. Karcher Rd
Nampa, Idaho 83652
(208) 467-5221

Responsible Official: Mike Ball
Vice President
(208) 467-5221 ext 110

Facility Contact: Greg Wood
Maintenance Engineer
(208) 467-5221 ext 104

3.0 FACILITY CLASSIFICATION

The Woodgrain Nampa facility is classified as a synthetic minor facility because operational limits limit the facility's potential to emit below the major source thresholds of 100 tons per year. The facility is not a designated facility as defined by IDAPA 58.01.01.006 and the facility is not a major source as defined in IDAPA 58.01.01.008. The primary Standard Industrial Classification for the facility is 2431, a millwork facility.

The facility is located within Canyon County which is designated unclassifiable for all regulated criteria pollutants.

4.0 FACILITY OVERVIEW

Woodgrain owns and operates a door manufacturing facility and produces interior and exterior panel doors. The facility is located at 1201 W. Karcher Road in Nampa, Idaho. The facility is comprised of the following equipment: seven (7) cyclones, four (4) bag-houses, one (1) chip bin, one (1) natural gas-fired boiler, ten (10) natural gas-fired space heaters, one (1) glue lamination area, one (1) door prime line, (1) natural gas-fired drying oven, and one (1) emergency diesel-fired water pump. Lastly, since the last permit renewal, the facility has removed the 1.0 MMBtu/hr veneer dryer unit.

Particulate Matter (PM&PM₁₀)

The facility uses various wood shapers, routers, saws, and sanding equipment to produce finished doors. There are eleven (11) point sources and one (1) fugitive source of particulate matter. The point sources include seven (7) cyclones and four (4) baghouses. All these point sources are process equipment, everything collected in the cyclones and baghouses is either sold or used as product, the only waste is what is not captured by the equipment. Cyclone emission factors used in the modeling analyses and this permit application are consistent with the emission factors determined in the April 23, 2004 report "Fruitland Idaho Facility Cyclone Particle Size Distribution and Cyclone Emission Factor Determination" report. The department approved the use of these emission factors in a letter from Bill Rogers dated May 19, 2004.

Combustion Sources:

The facility has three small combustion sources, one (1) 2.52 MMBtu/hr / boiler, ten (10) space heaters (grouped as one source, 3.30 MMBtu/hr), and one (1) 0.48 MMBtu/hr paint drying oven. All sources burn natural gas exclusively.

Volatile Organic Compounds (VOC)

The facility has essentially two (2) sources of VOC emissions other than the minimal amount from the combustion sources. Lamination (gluing), miscellaneous use of glue and a glue catalyst make up the first source. The new door prime line constitutes the final source. The prime line received PTC P-040036 earlier this year.

Emergency Fire Pump

The facility has one (1) emergency diesel-fired fire pump designed to provide a pressurized water source in emergency situations. The fire pump operates on diesel fuel with a sulfur content of 0.5% by weight (ASTM Grade No.2 fuel oil). The emission impacts from the fire pump were calculated using potential to emit operating hours and emission factors from AP-42. Generator maintenance and testing is limited to 15 minutes per day. The operating hours are verified to be in compliance by logging a non-resettable hour meter on the pump. A 300 gallon above ground storage tank (AST) is used to store ultra low diesel fuel for the emergency fire pump.

5.0 AIR DISPERSION MODELING

Per IDAPA 58.01.01.402.03 the facility is required to show compliance with National Ambient Air quality Standards (NAAQS). The Woodgrain Nampa facility is requesting to convert their current Tier II Operating Permit to a PTC. Through conversations with IDEQ, it is our understanding that no additional modeling will be required to convert Woodgrain Nampa's current Tier II Operating Permit to a PTC as long as there have been no changes to the facility.

The facility noticed, however, that the 220 HP (164 kW) diesel fire pump engine at the facility does not appear to have been included in any previous permitting analyses. To determine if emissions from the emergency diesel fire pump would trigger new facility-wide modeling, IDEQ conducted an engineering analysis and has determined that compliance with the applicable NAAQS would have been demonstrated by the July 2005 facility-wide modeling even if emissions from the fire pump engine had been included. Therefore, new facility-wide modeling is not required.

A detailed explanation of ambient air impacts is provided in Appendix E, IDEQ Memorandum Tier II to PTC Conversion, Woodgrain Millwork - Nampa, Facility ID 027-00060.

6.0 APPLICABLE REQUIREMENTS

A regulatory analysis was performed for the Woodgrain Nampa facility to determine the applicability of the state and federal air quality regulations. The regulatory applicability determinations are included in this section.

The following sections address air quality regulatory compliance requirements for the one (1) emergency diesel fire pump engine, one (1) 2.52 MMBtu/hr natural gas-fired boiler, one (1) natural gas-fired Water-Borne Prime Line with AES Infrared Drying oven, and three (3) ASTs. As described below, the sources comply with the applicable Idaho air quality regulations in Idaho Administrative Procedure Act (IDAPA) 58.01.01, as well as U.S. Environmental Protection Agency (EPA) Federal Regulations.

Emission Units	Source Description	Emission Control	Applicable Regulations
1	Water-Borne Prime Line with AES Infrared Drying System, natural gas fired oven, 480,000 BTU/hr	2 Interlocked Filters	None ¹
2	Boiler, natural gas fired with maximum heat input rate of 2.53 MMBTU/hr	None	None ^{2,4}
3	Emergency Fire Pump (CI), 220 hp, installed in 1967	None	None ^{3,5}
4	Wood processing and handling operations	Cyclones and Baghouses	None
5	Above ground storage tanks (ASTs)	None	None ⁶

Natural Emission Standards for Wood Building Products Surface Coating Operations 40 CFR Part 63, Subpart QQQQ

- ¹ 40 CFR Part 63, Subpart QQQQ, Natural Emission Standards for Wood Building Products Surface Coating Operations is not applicable. The Woodgrain Nampa facility is an Area Source and is not subject to 40 CFR Part 63, Subpart QQQQ.

Standard of Performance for Small Industrial-Commercial-Institutional Steam Generating Units – 40 CFR 60 Subpart Dc

- ² The natural gas-fired 2.53 MMBtu/Hr boiler is not subject to 40 CFR Part 60, Subpart Dc. According to § 60.40c, this subpart applies to boilers with heat input greater than 10 million Btu per hour (MMBtu/hr), but no more than 100 MMBtu/hr. The boiler at the Woodgrain Nampa facility is rated at 2.53 MMBTU/hr.

National Emissions Standards for hazardous Air Pollutants – 40 CFR Part 63

- ⁴ The Woodgrain Nampa facility is classified as an area source subject to 40 CFR Part 63, Subpart JJJJJ (Boiler MACT at Area Sources). An area source is defined with PTE < 10 tpy for any single HAP or PTE < 25 tpy for total HAPs. The single natural gas-fired boiler was evaluated for applicability to Subpart JJJJJ. In accordance with 40 CFR 63.

11195 (e), a gas fired boiler is not subject to this subpart. A gas-fired boiler is defined as a boiler that burns gaseous fuels not combined with any solid fuels, burns liquid fuel only during periods of gas curtailment, gas supply emergencies, or periodic testing on liquid fuel. Therefore, it appears that the single natural gas-fired boiler will be exempt from the requirements of Subpart JJJJJ when combusting natural gas.

There are no other applicable NESHAP requirements that apply to the Woodgrain Nampa facility.

New Source Performance Standards – 40 CFR Part 60

- 3 40 CFR Part 60, Subpart III is not applicable. According to § 60.4200 (a)(2)(ii), this subpart is applicable to stationary compression ignition (CI) Emergency Fire Pumps, manufactured as a Certified National Fire Protection Association (NFPA) fire pump engine after July 1, 2006. The emergency fire pump at the Woodgrain Nampa facility was installed in 1967.
- 5 40 CFR Part 63, Subpart ZZZZ is not applicable. This existing emergency fire pump is located in an area source. According to § 63.6590 (b) (3)(vii), existing commercial emergency stationary RICE located at an area source of HAP emissions do not have to meet the requirements of Subpart zzzz including initial notification requirements.

Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) - 40 CFR Part 60 Subpart Kb

- 6 There is an NSPS standard for petroleum storage vessels constructed after July 23, 1984, Subpart Kb. This NSPS applies to tanks that have a storage capacity of 75m³ (19,813 gallons), or greater. The two diesel and one waste oil storage tank have a capacity of approximately 1,050 gallons. There are no storage tanks at the Woodgrain Nampa facility with a capacity greater than 19,813 gallons; therefore NSPS Subpart Kb does not apply.

Mandatory Reporting of Greenhouse Gases - 40 CFR Part 98 Subpart W

- 7 On November 8, 2010, EPA signed a rule that finalized greenhouse gas (GHG) reporting requirements. Facilities must report GHG emissions if they meet the definition of one of the identified industry segments and emits 25,000 Metric Tons (MT) CO₂e (CO₂ equivalent) or more per year in combined GHG emissions. An air emission inventory for GHGs was performed for the Woodgrain Nampa facility and was estimated to emit approximately 2,205 metric tons per year of CO₂e. This estimated value would be considered the potential to emit operating 8,760 hours per year for each piece of equipment.

The Woodgrain Nampa facility is not subject to the GHG reporting requirements of 40 CFR Part 98 Subpart W because facility emissions are less than 25,000 metric tons per year. A copy of the emission estimate is included in Appendix E with this renewal application.

IDAPA Regulations

Permit to Construct – IDAPA 58.01.01.201

The project does not meet the exemption criteria contained in IDAPA 58.01.01 Sections 220 through 223; therefore, a PTC is required.

Visible Emissions – IDAPA 58.01.01.625

This regulation states that any point of emission shall not have a discharge of any air pollutant for a period aggregating more than three minutes in any sixty minute period of greater than 20% opacity. The seven cyclones, four bag-houses, one chip bin, one natural gas-fired boiler, ten natural gas-fired space heaters, one glue lamination area, one door prime line, natural gas-fired drying oven, and one emergency diesel-fired water pump are subject to the visible emissions standard.

Control of Odors – IDAPA 58.01.01.775-776

“No person shall allow, suffer, cause, or permit the emissions of odorous gases, liquids or solids to the atmosphere in such quantities as to cause air pollution.” The facility is subject to the general restrictions for the control of odors from the facility. This regulation is currently considered federally enforceable until it is removed from the State Implementation Plan (SIP), at which time it will be a state-only enforceable requirement.

Woodgrain Nampa’s facility will take all reasonable precautions to comply with this requirement by maintaining records of any odor complaint received and take action as expeditiously as practicable.

Open Burning – IDAPA 58.01.01.600-616

Woodgrain Nampa’s facility will comply with the requirements of the Rules for Control of Open Burning.

Rules for Control of Fugitive Dust – IDAPA 58.01.01.650

Woodgrain Nampa’s facility will take all reasonable precautions to prevent the generation of fugitive dust as outlined under IDAPA 58.01.01.650-651.

Distillate Fuel Oil Sulfur Limit – IDAPA 58.01.01.728

IDAPA regulations beginning at IDAPA 58.01.01.725 (Rules for Sulfur Content of Fuels) limit sulfur content of various fuels in Idaho. The distillate fuel oil combusted in the generators will be limited to 0.5 percent sulfur, per IDAPA 58.01.01.728. Ultra low sulfur diesel fuel will be used in emergency generators.

General Rules – IDAPA 58.01.01.651

“All reasonable precautions shall be taken to prevent particulate matter from becoming airborne. In determining what is reasonable, consideration will be given to factors such as the proximity of dust emitting operations to human habitations and/or activities, the proximity to mandatory Class I Federal Areas and atmospheric conditions which might affect the movement of particulate matter. Some of the reasonable precautions may include, but are not limited to, the following:”

Use of Water or Chemicals – IDAPA 58.01.01.651.01

“Use, where practical, of water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the grading of roads, or the clearing of land.”

Application of Dust Suppressants – IDAPA 58.01.01.651.02

“Application, where practical, of asphalt, oil, water or suitable chemicals to, or covering of dirt roads, material stockpiles, and other surfaces which can create dust.”

Use of Control Equipment – IDAPA 58.01.01.651.03

“Installation and use, where practical, of hoods, fans and fabric filters or equivalent systems to enclose and vent the handling of dusty materials. Adequate containment methods should be employed during sandblasting or other operations.”

Covering of Trucks – IDAPA 58.01.01.651.04

“Covering, when practical, open bodied trucks transporting materials likely to give rise to airborne dusts.”

Paving – 58.01.01.651.05

“Paving of roadways and their maintenance in a clean condition, where practical.”

Removal of Materials - IDAPA 58.01.01.651.06

“Prompt removal of earth or other stored material from streets, where practical.”

The Woodgrain Nampa facility will monitor and maintain records of the frequency and method(s) used (i.e., water) to reasonably control fugitive emissions. Records will be maintained of all fugitive dust complaints received. Appropriate corrective action will be taken as expeditiously as practicable after receipt of a valid complaint. The records will include, at a minimum, the date that each complaint was received and a description of the following: the complaint, the facilities assessment of the validity of the complaint, any corrective action taken, and the date that corrective action was taken.

7.0 EMISSION ESTIMATES

Since there have not been any major modifications or new construction projects which would significantly affect the existing emission inventory which was included in the facility's Tier II Operating Permit and Permit to Construct Application No. T2-050033, IDEQ is not requesting a new facility-wide emission inventory. However, since the facility removed the veneer drying unit and to account for emergency fire pump emissions, an updated facility emission inventory is included in Appendix E.

The potential to emit (PTE) for materials handling emissions shown in pounds per hour (lb/hr) and tons per year (tpy) were taken from the 2006 statement of basis (T2-050033). The PTE in tpy for other emission sources (except for the fire pump engine) were also taken from the 2006 statement of basis (T2-050033).

Air Toxics/Hazardous Air Pollutants (HAP)

Under the National Emission Standards for Hazardous Air Pollutants (NESHAP) Area sources of hazardous air pollutants are defined as those facilities that emit less than 10 tons per year of any individual hazardous air pollutant or less than 25 tons per year of any combination of hazardous air pollutants. Major sources subject to NESHAP are defined as those facilities emitting, or having the potential to emit, 10 tons per year or more of one HAP or 25 tons per year or more of multiple HAPs.

To determine if the Woodgrain Nampa facility is classified as an Area or Major source under NESHAP, HAPs emissions were calculated for the boiler, space heaters, and paint drying oven. This estimated value would be considered the potential to emit; operating 8,760 hours per year for each piece of equipment. Emission estimates are included in Appendix E.

Greenhouse Gases

On November 8, 2010, EPA signed a rule that finalized greenhouse gas (GHG) reporting requirements. Facilities must report GHG emissions if they meet the definition of one of the identified industry segments and emits 25,000 Metric Tons (MT) CO₂e (CO₂ equivalent) or more per year in combined GHG emissions. To determine if the Woodgrain Nampa facility is subject to GHG reporting requirements, GHG emissions were calculated for combustion sources using potential to emit; operating 8,760 hours per year. Emission estimates are included in Appendix E.



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	Woodgrain Millwork, Inc.		
2. Facility Name	Nampa Facility	3. Facility ID No.	027-00060
4. Brief Project Description - One sentence or less	Renew Tier II Operating Permit / Permit to Construct # T2-050033 and convert all operations to a PTC		

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.: T2-050033 Date Issued: 10/5/06
 Required by Enforcement Action: Case No.: _____

6. Minor PTC Major PTC

FORMS INCLUDED

Included	N/A	Forms	DEQ Verify
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Form CSPTC – Cover Sheet	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Form GI – Facility Information	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Form EU0 – Emissions Units General	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Form EU1– Industrial Engine Information Please specify number of EU1s attached: <u>1</u>	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form EU2– Nonmetallic Mineral Processing Plants Please specify number of EU2s attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form EU3– Spray Paint Booth Information Please specify number of EU3s attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form EU4– Cooling Tower Information Please specify number of EU3s attached: _____	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Form EU5 – Boiler Information Please specify number of EU4s attached: <u>1</u>	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form CBP– Concrete Batch Plant Please specify number of CBPs attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form HMAP – Hot Mix Asphalt Plant Please specify number of HMAPs attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	PERF – Portable Equipment Relocation Form	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form AO – Afterburner/Oxidizer	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form CA – Carbon Adsorber	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form CYS – Cyclone Separator	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form ESP – Electrostatic Precipitator	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Form BCE– Baghouses Control Equipment	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form SCE– Scrubbers Control Equipment	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form VSCE – Venturi Scrubber Control Equipment	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form CAM – Compliance Assurance Monitoring	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Forms EI– Emissions Inventory	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	PP – Plot Plan	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Forms MI1 – MI4 – Modeling (Excel workbook, all 4 worksheets)	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Form FRA – Federal Regulation Applicability	<input type="checkbox"/>

Instructions for Form CSPTC

This form is the cover sheet for an air quality permit application. It provides DEQ with basic information regarding the company and the proposed permitting action. This form helps DEQ efficiently determine whether the application is administratively complete. This form also provides the applicant with a list of forms available to aid the applicant to successfully submit a complete application.

Company Name, Facility Name, and Facility ID Number

- 1-3. Provide the name of your company, the name of the facility (if different than company name), and the facility identification (ID) number (Facility ID No.) in the boxes provided. The facility ID number is also known as the AIRS number or AIRS/AFS number (example: 095-00077). If you already have a permit, the facility ID number is located in the upper right hand corner of the cover page. The facility ID number must be provided unless your facility has not received one, in which case you may leave this box empty. **Use these same names and ID number on all forms.** This is useful in case any pages of the application are separated.
4. Provide a brief description of this permitting project in one sentence or less. Examples might be "Install/construct a new boiler" or "Increase the allowable process throughput." **This description will be used by DEQ as a unique identifier for this permitting project, in conjunction with the name(s) and ID number referenced in 1-3.** You will need to put this description, using the exact same words, on all other forms that are part of this project application. This is useful in case any pages of the application are separated.

Permit Application Type

5. Provide the reason you are submitting the permit application by checking the appropriate box (e.g., a new facility being constructed, a new source being constructed at an existing facility, an unpermitted existing source (as-built) applying for a permit for the first time, a permitted source to be modified, or the permit application is the result of an enforcement action, in which case provide the case number). If you are modifying an existing permitted source, provide the number and issue date of the most recent permit.

If this PTC is for a Tier I source issued pursuant to the procedures contained at IDAPA 58.01.01.209.05.c, the source or modification may operate upon submittal of a Tier I Administrative Amendment issued pursuant to IDAPA 58.01.01.381.

6. Indicate if the application is a minor permit to construct application or a major permit to construct application by checking the appropriate box (e.g., major PTC or minor PTC). If the permit to construct application is for a major new source or major modification, you must ensure that all necessary information required by IDAPA 58.01.01.202, and .204, or .205, as applicable, is provided.

Forms Included

Check the "Included" box for each form included in this permit to construct application. If there are multiples of a form for multiple units of that type, check the box and fill in the number of forms in the blank provided.

The "N/A" box should only be checked if the form is absolutely unnecessary to complete the application. Additional information may be requested.

Application Fee

All applicants for a PTC shall submit a PTC application fee of \$1000.00 to DEQ at the time of the original submission of the application as required by IDAPA 58.01.01.224. An application fee is not required for exemption applicability determinations, typographical errors, and name or ownership changes. An application fee can be paid by check, credit card, or Electronic Funds Transfer (EFT). If you choose to pay by credit card or EFT, call DEQs Fiscal Office to complete the necessary paperwork. Paper checks must be submitted with the original application as described below.

Submit Application

When complete, enclose a check for the application fee along with the hardcopy application certified by a responsible official (as defined in IDAPA 58.01.01.006.94), and send to:

Air Quality Program Office – Application Processing
Department of Environmental Quality
1410 N. Hilton
Boise, ID 83706-1255



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 Woodgrain Millwork, Inc		2. Facility Name Nampa Facility	
3. Brief Project Description: Renew Tier II Operating Permit /Permit to Construct # T2-050033 and convert all operations to a PTC			

FACILITY INFORMATION

4. Primary Facility Permit Contact Person/Title	Mike Ball	Vice President
5. Telephone Number and Email Address	208-467-5221 ext. 110	mball@woodgrain.com
6. Alternate Facility Contact Person/Title	Greg Wood	Maintenance Manager / Engineer
7. Telephone Number and Email Address	208-476-5221 ext. 104	gwood@woodgrain.com
8. Address to Which the Permit Should be Sent	P.O. Box 9489	
9. City/County/State/Zip Code	Nampa Canyon Idaho	83652
10. Equipment Location Address (if different than the mailing address above)	1201 W. Karcher Rd	
11. City/County/State/Zip Code	Nampa Canyon Idaho	83652
12. Is the Equipment Portable?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
13. SIC Code(s) and NAICS Code	Primary SIC: 2431	Secondary SIC: NAICS: 321911
14. Brief Business Description and Principal Product	Millwork, Wood Door Manufacturing	
15. Identify any adjacent or contiguous facility that this company owns and/or operates	None	
16. Specify the reason for the application	<input checked="" type="checkbox"/> Permit to Construct (PTC) <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>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.</p> <input type="checkbox"/> Incorporate the PTC at the time of the Tier I renewal <input type="checkbox"/> Co-process the Tier I modification and PTC <input type="checkbox"/> Administratively amend the Tier I permit to incorporate the PTC upon your request (IDAPA 58.01.01.209.05.a, b, or c) </div> <input type="checkbox"/> Tier I Permit <input type="checkbox"/> Tier II Permit <input type="checkbox"/> 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	Mike Ball	Vice President
18. Responsible Official's Signature	<i>Mike Ball</i>	Date: 12-15-11
19. <input checked="" type="checkbox"/> Check here to indicate that you would like to review the draft permit prior to final issuance.		

Instructions for Form GI

This form is used by DEQ to identify a company or facility, equipment locations, and personnel involved with the permit application. Additional information may be requested.

- 1 – 3. Please fill in 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.
4. Name of the primary person who should be contacted regarding this permit.
5. Telephone number and e-mail address of person listed in 4.
6. Name of the person who should be contacted if the person listed in 4 is not available.
7. Telephone number and e-mail address of person listed in 6.
- 8 - 9. Address to which DEQ should mail the permit.
- 10 – 11. Physical address at which the equipment is located (if different than 9).
12. If the equipment is portable (such as an asphalt plant), identify by marking "yes." If there are other locations where you know the portable equipment will be used, attach a Portable Equipment Relocation Form (PERF) to list those locations. An electronic copy of the PERF can be obtained from the DEQ website http://www.deq.idaho.gov/air/permits_forms/forms/ptc_relocation.pdf (or http://www.deq.idaho.gov/air/permits_forms/forms/ptc_relocation.doc for Word format).
Important note: In addition to being submitted with this PTC application, a PERF must also be completed and filed at DEQ at least 10 days in advance of relocating any of the equipment covered in this application.
13. Provide the Standard Industrial Classification (SIC) code and the North American Industry Classification System (NAICS) code for your plant. NAICS codes can be found at <http://www.census.gov/epcd/naics02/naicod02.htm>. If a secondary SIC code is applicable, provide it also.
14. Describe the primary activity and principal product of your business as it relates to the SIC code or NAISC code listed in line 13.
15. Please indicate if there are any other branches or divisions of this company located on adjacent or contiguous properties.
16. Check the box which describes the type of permit application.

For existing Tier I facilities that are applying for a PTC the applicant must specify how the PTC will be incorporated to the Tier I permit (IDAPA 58.01.01.209.05; Call the Air Permit Hotline if you have questions 1-877-573-7648).
- 17 – 18. Provide the name and title of the facilities responsible official. Responsible official is defined in IDAPA 58.01.01.006.97. The Responsible official must sign and date the application before it is submitted to DEQ.
19. If you would like to review a draft before the final permit is issued, check this box.



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

IDENTIFICATION

1. Company Name: Woodgrain Millwork, Inc	2. Facility Name: Nampa Facility	3. Facility ID No: 027-00060
4. Brief Project Description: Renew Tier II Operating Permit / Permit to Construct #T2-050033 & Convert to PTC		

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5. Emissions Unit (EU) Name:	HEATERS		
6. EU ID Number:	HEATERS		
7. EU Type:	<input type="checkbox"/> New Source <input type="checkbox"/> Unpermitted Existing Source <input checked="" type="checkbox"/> Modification to a Permitted Source -- Previous Permit #:T2-050033 Date Issued: October 5, 2006		
8. Manufacturer:	VARIOUS		
9. Model:	VARIOUS		
10. Maximum Capacity:	10 NG SPACE HEATERS, 3.30 MMBT/HR COMBINED		
11. Date of Construction:	1986		
12. Date of Modification (if any):	2004		
13. Is this a Controlled Emission Unit?	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes If Yes, complete the following section. If No, go to line 22.		

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	
15. Date of Installation:	16. Date of Modification (if any):
17. Manufacturer and Model Number:	
18. ID(s) of Emission Unit Controlled:	
19. Is operating schedule different than emission units(s) involved?	<input type="checkbox"/> Yes <input type="checkbox"/> No
20. Does the manufacturer guarantee the control efficiency of the control equipment?	<input type="checkbox"/> Yes <input type="checkbox"/> No (If Yes, attach and label manufacturer guarantee)

Control Efficiency	Pollutant Controlled					
	PM	PM10	SO ₂	NO _x	VOC	CO

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22. Actual Operation:	8760
23. Maximum Operation:	8760

REQUESTED LIMITS

24. Are you requesting any permit limits?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If Yes, indicate all that apply below)	
<input type="checkbox"/> Operation Hour Limit(s):		
<input type="checkbox"/> Production Limit(s):		
<input type="checkbox"/> Material Usage Limit(s):		
<input type="checkbox"/> Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports	
<input type="checkbox"/> Other:		
25. Rationale for Requesting the Limit(s):		

Instructions for Form EU0

This form provides DEQ with information about an emissions unit. An emissions unit is the equipment or process that generates emissions of regulated air pollutant(s). This form is used by the permit writer to become familiar with the emissions unit (EU). This form is also used by DEQ to identify the control equipment and the emission point (stack or vent) used for the emission unit(s) proposed in this permit application. This form also asks for supporting documents to verify stated control efficiencies and details about the emission point. Additional information may be requested.

- 1 - 4. Provide the same company name, facility name (if different), 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.
5. Provide the name of the emissions unit (EU), such as "Union boiler," etc. A separate EU0 form is required for each emissions unit.
6. Provide the identification (ID) number of the EU. It 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 any other air quality permit application(s) (e.g., operating permit application) to identify this EU.
7. Indicate the type of EU by checking the appropriate box (e.g., a new source to be constructed, an unpermitted existing source (as-built) applying for the first time, or an existing permitted source to be modified). If the EU is being modified, indicate on the form the most recent permit issued for the EU.
8. Provide the manufacturer's name for the EU. If the EU is custom-designed or homemade, indicate so.
9. Provide the model number of the EU. If the EU is custom-designed or homemade, indicate so.
10. Provide the maximum capacity of the EU. For example, a boiler's rated capacity may be modified in units of MMBtu/hr in terms of heat input of natural gas; an assembly line capacity may be in parts produced per day. Capacity should be based on a rated nameplate or as stated in the manufacturer's literature.
11. The date of construction is the month, day, and year in which construction or modification was commenced.

Definitions:

Construction fabrication, erection, or installation of an affected facility.

Commenced an owner or operator has undertaken a continuous program of construction or modification or that an owner or operator has entered into a contractual obligation to undertake and complete, within a reasonable time, a continuous program of construction or modification.

Modification any physical change in, or change in the method of operation of, an existing facility which increases the amount of any air pollutant (to which a standard applies) emitted to the atmosphere by that facility or which results in the emission of any air pollutant (to which a standard applies) to the atmosphere not previously emitted.

12. If the EU has been or will be modified, provide the month, day, and year of the most recent or future modification as defined in IDAPA 58.01.01.006.
13. Indicate if emissions from the EU are controlled by air pollution control equipment. If the answer is yes, complete the next section. If the answer is no, go to line 18.
14. Provide the name of the air pollution control equipment (e.g., wet scrubber) and the control equipment's identification number. This identification number should be unique to this air pollution control equipment and should be used consistently throughout this and all other air quality permit applications (e.g., operating permit application) to identify this air pollution control equipment.

15. Provide the date the air pollution control equipment was installed.
16. If the air pollution control equipment has been modified, provide the date of the modification.
17. Provide the name of the manufacturer and the model number for the air pollution control equipment.
18. If this air pollution control equipment controls emissions from more than this EU, provide the identification number(s) of the other EU(s).
19. Indicate if this air pollution control equipment operates on a schedule different from the EU(s) it controls.
20. Indicate if the air pollution control manufacturer guarantees the control efficiency of the control equipment. If the answer is yes, attach the manufacturer's guarantee and label it with the air pollution control equipment identification number. Indicate the control efficiency for the target pollutant(s).
21. If the control efficiency of the air pollution control equipment is not guaranteed, attach the design specifications and any performance data to support the control efficiency stated in part 16. Label the supporting documentation with the air pollution control equipment identification number.
22. Provide the projected actual operating schedule for the emission unit in hours/day, hours/year, or other.
23. Provide the maximum operating schedule for the emission unit in hours/day, hours/year, or other.
24. If you are requesting to have limits placed on this EU, mark "Yes." Then, check the applicable requested limit(s) and provide the limit(s). For example, production limits may be in terms of parts produced per year, material usage limits may be in gallons per day.
25. Please provide the reason you are requesting limits, if any. This helps DEQ and the applicant determine whether the limits are necessary, and if they will accomplish the desired purpose. Provide supporting documentation (calculations, modeling assessment, regulatory review, etc.) for each limit requested.



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

IDENTIFICATION

1. Company Name: Woodgrain Millwork, Inc	2. Facility Name: Nampa Facility	3. Facility ID No: 027-00060
4. Brief Project Description: Renew Tier II Operating Permit / Permit to Construct #T2-050033 & Convert to PTC		

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5. Emissions Unit (EU) Name:	PAINT DRYING OVEN		
6. EU ID Number:	PAINT DRYING OVEN		
7. EU Type:	<input type="checkbox"/> New Source <input type="checkbox"/> Unpermitted Existing Source <input checked="" type="checkbox"/> Modification to a Permitted Source -- Previous Permit #:PTC -040036 Date Issued: April 15, 2005		
8. Manufacturer:	AES		
9. Model:	CDA100111GI		
10. Maximum Capacity:	0.48 MMBTU/HR		
11. Date of Construction:	MAY 2003		
12. Date of Modification (if any):	N/A		
13. Is this a Controlled Emission Unit?	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes If Yes, complete the following section. If No, go to line 22.		

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	
15. Date of Installation:	16. Date of Modification (if any):
17. Manufacturer and Model Number:	
18. ID(s) of Emission Unit Controlled:	
19. Is operating schedule different than emission units(s) involved?	<input type="checkbox"/> Yes <input type="checkbox"/> No
20. Does the manufacturer guarantee the control efficiency of the control equipment?	<input type="checkbox"/> Yes <input type="checkbox"/> No (If Yes, attach and label manufacturer guarantee)

Control Efficiency	Pollutant Controlled					
	PM	PM10	SO ₂	NO _x	VOC	CO

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22. Actual Operation:	8760
23. Maximum Operation:	8760

REQUESTED LIMITS

24. Are you requesting any permit limits?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If Yes, indicate all that apply below)
<input type="checkbox"/> Operation Hour Limit(s):	
<input type="checkbox"/> Production Limit(s):	
<input type="checkbox"/> Material Usage Limit(s):	
<input type="checkbox"/> Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
<input type="checkbox"/> Other:	

25. Rationale for Requesting the Limit(s):	
--	--



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

Emissions Units - Industrial Boiler Information Form EU5

Revision 5
 08/28/08

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

IDENTIFICATION

1. Company Name: Woodgrain Millwork, Inc	2. Facility Name: Nampa Facility	3 Facility ID No: 027-00060
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4. Brief Project Description:

EXEMPTION

Please see IDAPA 58.01.01.222 for a list of industrial boilers that are exempt from Permit to Construct requirements.

BOILER (EMISSION UNIT) DESCRIPTION AND SPECIFICATIONS

5. Type of Request: New Unit Unpermitted Existing Unit Modification to a Unit with Permit #:

6. Use of Boiler: % Used For Process % Used For Space Heat % Used For Generating Electricity
 Other:

7. Boiler ID Number: Boiler 1	8. Rated Capacity: <input checked="" type="checkbox"/> 2.52 Million British Thermal Units Per Hour (MMBtu/hr) <input type="checkbox"/> 1,000 Pounds Steam Per Hour (1,000 lb steam/hr)	
9. Construction Date: 1992	10. Manufacturer: Williams & Davis	11. Model: 780
12. Date of Modification (if applicable): n/a	13. Serial Number (if available): 6460	14. Control Device (if any): Note: Attach applicable control equipment form(s)

FUEL DESCRIPTION AND SPECIFICATIONS

15. Fuel Type	<input type="checkbox"/> Diesel Fuel (#) (gal/hr)	<input checked="" type="checkbox"/> Natural Gas (cf/hr)	<input type="checkbox"/> Coal (unit: /hr)	<input type="checkbox"/> Other Fuels (unit: /hr)
16. Full Load Consumption Rate				
17. Actual Consumption Rate				
18. Fuel Heat Content (Btu/unit, LHV)		1,020 BTU/SCF		
19. Sulfur Content wt%				
20. Ash Content wt%		N/A		

STEAM DESCRIPTION AND SPECIFICATIONS

21. Steam Heat Content	NA	NA		
22. Steam Temperature (°F)	N/A	N/A		
23. Steam Pressure (psi)	N/A	N/A		
24 Steam Type	N/A	N/A	<input type="checkbox"/> Saturated <input type="checkbox"/> Superheated	<input type="checkbox"/> Saturated <input type="checkbox"/> Superheated

OPERATING LIMITS & SCHEDULE

25. Imposed Operating Limits (hours/year, or gallons fuel/year, etc.):	8760 hours/yr
26. Operating Schedule (hours/day, months/year, etc.):	8760 hours/yr
27. NSPS Applicability: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If Yes, which subpart:

Instructions for Form EU5

Please refer to IDAPA 58.01.01.222 for a list of industrial boilers which are exempt from the Permit to Construct requirements.

- 1 – 4. Provide the same company name, facility name (if different), and facility ID number as on Form CS. This is useful in case any pages of the application are separated.

Boiler Description and Specification:

5. Indicate whether the unit is new, existing but unpermitted, or being modified.
6. Indicate the percentage of the steam used for process, space heat, generating electricity, or others.
7. Provide the boiler identification (ID) number. Each boiler in the application must have its own number. If boilers included in this permit application are not identical in make and model, fill out a separate EU5 form for each boiler. If the boilers are identical, attach a separate sheet labeled EU5A listing them by ID number and date of construction or modification. The boiler ID numbers should match the boiler ID numbers used on other construction permit applications and within this application. It can be any number. However, if you submitted an operating permit application, the numbers used for identification purposes in this application should be consistent with the ID numbers used in your operating permit application.
8. The boiler's rated capacity should be read from the boiler's nameplate or from the manufacturer's literature.
9. The date of construction of the emission unit is the date, month, and year in which construction or modification begins as defined in EU0 Form Instruction item 7.
10. Provide the name of the manufacturer of the boiler.
11. Provide the model number of the boiler. This number should be available from the nameplate of the boiler.
12. If the boiler has been or will be modified, give the date, month and year of the most recent or future modification.
13. Provide the manufacturer's serial number for this boiler, if available.
14. Provide the control device name and number if a pollution control device is attached to this emission unit. The name and number of the control device should be consistent with control equipment forms throughout the application. **Note: a separate control equipment form(s) should be attached for all applicable control equipment serving this unit.**

Fuel Description and Specifications:

15. Indicate the fuel type used by the boiler. If diesel fuel is used, you need to indicate the ranking number. If the boiler is a dual-fuel engine, please check all appropriate fuel type boxes in this row.
16. The full-load consumption rate is the fuel consumption rate at the boiler's rated capacity.
17. The actual consumption rate is the fuel consumption rate (usually daily average) under typical operational conditions.
18. Provide fuel net or lower heating value (LHV).
19. Provide the weight percentage of the sulfur content in the fuel.
20. Provide the weight percentage of the ash content in the fuel. For gaseous fuel, this information is not required.

Steam Description and Specifications:

21. Provide the steam heat content. This information is not required for gaseous or liquid fuel.
22. Provide the steam temperature in °F. This information is not required for gaseous or liquid fuel.
23. Provide the steam pressure in pound per square inch (psi). This information is not required for gaseous or liquid fuel.
24. Provide the steam type (i.e. saturated or superheated). This information is not required for gaseous or liquid fuel.

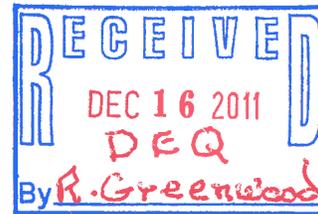
Operation Limits:

25. If any, indicate the operating limits you imposed on this boiler in the units of operating hours per year, or gallons fuel per hour, per year, etc.
26. Indicate your operation schedule for the projected maximum operation of the engine.
27. Provide NSPS (new source performance standards) applicability determination and, if applicable, subpart reference.

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DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE A Q PROGRAM



woodgrain millwork

**Nampa Facility
Facility ID No. 027-00060
PTC Application**

**Prepared For:
Idaho Department of Environmental Quality
Air Quality Division
1410 N. Hilton
Boise, Idaho 83706**

Prepared by:

**Hildebrand
& Associates, LLC**

**4623 E. Pegasus Ct
Boise, Idaho 83716**

December 2011

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- A PERMIT TO CONSTRUCT APPLICATION FORMS
- B SITE PLAN
- C WOODGRAIN MODELING DATA FROM 2005
- D IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY MODELING
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1.0 INTRODUCTION

The Woodgrain Millwork, Inc. (Woodgrain) Nampa Facility Tier II Operating Permit / Permit to Construct renewal application is being submitted in accordance with Idaho air quality regulations in Idaho Administrative Procedure Act (IDAPA) 58.01.01 200 for the renewal of the current operating permit T2-050033. Furthermore, the Nampa facility has seen no change in operations in the past eight years and does not anticipate any operational changes in the near future. Therefore, Woodgrain is requesting to convert all operations to a Permit to Construct.

2.0 GENERAL INFORMATION

Facility: Woodgrain Millwork, Inc
Nampa facility
1201 W. Karcher Rd
Nampa, Idaho 83652
(208) 467-5221

Responsible Official: Mike Ball
Vice President
(208) 467-5221 ext 110

Facility Contact: Greg Wood
Maintenance Engineer
(208) 467-5221 ext 104

3.0 FACILITY CLASSIFICATION

The Woodgrain Nampa facility is classified as a synthetic minor facility because operational limits limit the facility's potential to emit below the major source thresholds of 100 tons per year. The facility is not a designated facility as defined by IDAPA 58.01.01.006 and the facility is not a major source as defined in IDAPA 58.01.01.008. The primary Standard Industrial Classification for the facility is 2431, a millwork facility.

The facility is located within Canyon County which is designated unclassifiable for all regulated criteria pollutants.

4.0 FACILITY OVERVIEW

Woodgrain owns and operates a door manufacturing facility and produces interior and exterior panel doors. The facility is located at 1201 W. Karcher Road in Nampa, Idaho. The facility is comprised of the following equipment: seven (7) cyclones, four (4) bag-houses, one (1) chip bin, one (1) natural gas-fired boiler, ten (10) natural gas-fired space heaters, one (1) glue lamination area, one (1) door prime line, (1) natural gas-fired drying oven, and one (1) emergency diesel-fired water pump. Lastly, since the last permit renewal, the facility has removed the 1.0 MMBtu/hr veneer dryer unit.

Particulate Matter (PM&PM₁₀)

The facility uses various wood shapers, routers, saws, and sanding equipment to produce finished doors. There are eleven (11) point sources and one (1) fugitive source of particulate matter. The point sources include seven (7) cyclones and four (4) baghouses. All these point sources are process equipment, everything collected in the cyclones and baghouses is either sold or used as product, the only waste is what is not captured by the equipment. Cyclone emission factors used in the modeling analyses and this permit application are consistent with the emission factors determined in the April 23, 2004 report "Fruitland Idaho Facility Cyclone Particle Size Distribution and Cyclone Emission Factor Determination" report. The department approved the use of these emission factors in a letter from Bill Rogers dated May 19, 2004.

Combustion Sources:

The facility has three small combustion sources, one (1) 2.52 MMBtu/hr / boiler, ten (10) space heaters (grouped as one source, 3.30 MMBtu/hr), and one (1) 0.48 MMBtu/hr paint drying oven. All sources burn natural gas exclusively.

Volatile Organic Compounds (VOC)

The facility has essentially two (2) sources of VOC emissions other than the minimal amount from the combustion sources. Lamination (gluing), miscellaneous use of glue and a glue catalyst make up the first source. The new door prime line constitutes the final source. The prime line received PTC P-040036 earlier this year.

Emergency Fire Pump

The facility has one (1) emergency diesel-fired fire pump designed to provide a pressurized water source in emergency situations. The fire pump operates on diesel fuel with a sulfur content of 0.5% by weight (ASTM Grade No.2 fuel oil). The emission impacts from the fire pump were calculated using potential to emit operating hours and emission factors from AP-42. Generator maintenance and testing is limited to 15 minutes per day. The operating hours are verified to be in compliance by logging a non-resettable hour meter on the pump. A 300 gallon above ground storage tank (AST) is used to store ultra low diesel fuel for the emergency fire pump.

5.0 AIR DISPERSION MODELING

Per IDAPA 58.01.01.402.03 the facility is required to show compliance with National Ambient Air quality Standards (NAAQS). The Woodgrain Nampa facility is requesting to convert their current Tier II Operating Permit to a PTC. Through conversations with IDEQ, it is our understanding that no additional modeling will be required to convert Woodgrain Nampa's current Tier II Operating Permit to a PTC as long as there have been no changes to the facility.

The facility noticed, however, that the 220 HP (164 kW) diesel fire pump engine at the facility does not appear to have been included in any previous permitting analyses. To determine if emissions from the emergency diesel fire pump would trigger new facility-wide modeling, IDEQ conducted an engineering analysis and has determined that compliance with the applicable NAAQS would have been demonstrated by the July 2005 facility-wide modeling even if emissions from the fire pump engine had been included. Therefore, new facility-wide modeling is not required.

A detailed explanation of ambient air impacts is provided in Appendix E, IDEQ Memorandum Tier II to PTC Conversion, Woodgrain Millwork - Nampa, Facility ID 027-00060.

6.0 APPLICABLE REQUIREMENTS

A regulatory analysis was performed for the Woodgrain Nampa facility to determine the applicability of the state and federal air quality regulations. The regulatory applicability determinations are included in this section.

The following sections address air quality regulatory compliance requirements for the one (1) emergency diesel fire pump engine, one (1) 2.52 MMBtu/hr natural gas-fired boiler, one (1) natural gas-fired Water-Borne Prime Line with AES Infrared Drying oven, and three (3) ASTs. As described below, the sources comply with the applicable Idaho air quality regulations in Idaho Administrative Procedure Act (IDAPA) 58.01.01, as well as U.S. Environmental Protection Agency (EPA) Federal Regulations.

Emission Units	Source Description	Emission Control	Applicable Regulations
1	Water-Borne Prime Line with AES Infrared Drying System, natural gas fired oven, 480,000 BTU/hr	2 Interlocked Filters	None ¹
2	Boiler, natural gas fired with maximum heat input rate of 2.53 MMBTU/hr	None	None ^{2,4}
3	Emergency Fire Pump (CI), 220 hp, installed in 1967	None	None ^{3,5}
4	Wood processing and handling operations	Cyclones and Baghouses	None
5	Above ground storage tanks (ASTs)	None	None ⁶

Natural Emission Standards for Wood Building Products Surface Coating Operations 40 CFR Part 63, Subpart QQQQ

- ¹ 40 CFR Part 63, Subpart QQQQ, Natural Emission Standards for Wood Building Products Surface Coating Operations is not applicable. The Woodgrain Nampa facility is an Area Source and is not subject to 40 CFR Part 63, Subpart QQQQ.

Standard of Performance for Small Industrial-Commercial-Institutional Steam Generating Units – 40 CFR 60 Subpart Dc

- ² The natural gas-fired 2.53 MMBtu/Hr boiler is not subject to 40 CFR Part 60, Subpart Dc. According to § 60.40c, this subpart applies to boilers with heat input greater than 10 million Btu per hour (MMBtu/hr), but no more than 100 MMBtu/hr. The boiler at the Woodgrain Nampa facility is rated at 2.53 MMBTU/hr.

National Emissions Standards for hazardous Air Pollutants – 40 CFR Part 63

- ⁴ The Woodgrain Nampa facility is classified as an area source subject to 40 CFR Part 63, Subpart JJJJJ (Boiler MACT at Area Sources). An area source is defined with PTE < 10 tpy for any single HAP or PTE < 25 tpy for total HAPs. The single natural gas-fired boiler was evaluated for applicability to Subpart JJJJJ. In accordance with 40 CFR 63.

11195 (e), a gas fired boiler is not subject to this subpart. A gas-fired boiler is defined as a boiler that burns gaseous fuels not combined with any solid fuels, burns liquid fuel only during periods of gas curtailment, gas supply emergencies, or periodic testing on liquid fuel. Therefore, it appears that the single natural gas-fired boiler will be exempt from the requirements of Subpart JJJJJ when combusting natural gas.

There are no other applicable NESHAP requirements that apply to the Woodgrain Nampa facility.

New Source Performance Standards – 40 CFR Part 60

- 3 40 CFR Part 60, Subpart III is not applicable. According to § 60.4200 (a)(2)(ii), this subpart is applicable to stationary compression ignition (CI) Emergency Fire Pumps, manufactured as a Certified National Fire Protection Association (NFPA) fire pump engine after July 1, 2006. The emergency fire pump at the Woodgrain Nampa facility was installed in 1967.
- 5 40 CFR Part 63, Subpart ZZZZ is not applicable. This existing emergency fire pump is located in an area source. According to § 63.6590 (b) (3)(vii), existing commercial emergency stationary RICE located at an area source of HAP emissions do not have to meet the requirements of Subpart zzzz including initial notification requirements.

Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) - 40 CFR Part 60 Subpart Kb

- 6 There is an NSPS standard for petroleum storage vessels constructed after July 23, 1984, Subpart Kb. This NSPS applies to tanks that have a storage capacity of 75m³ (19,813 gallons), or greater. The two diesel and one waste oil storage tank have a capacity of approximately 1,050 gallons. There are no storage tanks at the Woodgrain Nampa facility with a capacity greater than 19,813 gallons; therefore NSPS Subpart Kb does not apply.

Mandatory Reporting of Greenhouse Gases - 40 CFR Part 98 Subpart W

- 7 On November 8, 2010, EPA signed a rule that finalized greenhouse gas (GHG) reporting requirements. Facilities must report GHG emissions if they meet the definition of one of the identified industry segments and emits 25,000 Metric Tons (MT) CO₂e (CO₂ equivalent) or more per year in combined GHG emissions. An air emission inventory for GHGs was performed for the Woodgrain Nampa facility and was estimated to emit approximately 2,205 metric tons per year of CO₂e. This estimated value would be considered the potential to emit operating 8,760 hours per year for each piece of equipment.

The Woodgrain Nampa facility is not subject to the GHG reporting requirements of 40 CFR Part 98 Subpart W because facility emissions are less than 25,000 metric tons per year. A copy of the emission estimate is included in Appendix E with this renewal application.

IDAPA Regulations

Permit to Construct – IDAPA 58.01.01.201

The project does not meet the exemption criteria contained in IDAPA 58.01.01 Sections 220 through 223; therefore, a PTC is required.

Visible Emissions – IDAPA 58.01.01.625

This regulation states that any point of emission shall not have a discharge of any air pollutant for a period aggregating more than three minutes in any sixty minute period of greater than 20% opacity. The seven cyclones, four bag-houses, one chip bin, one natural gas-fired boiler, ten natural gas-fired space heaters, one glue lamination area, one door prime line, natural gas-fired drying oven, and one emergency diesel-fired water pump are subject to the visible emissions standard.

Control of Odors – IDAPA 58.01.01.775-776

“No person shall allow, suffer, cause, or permit the emissions of odorous gases, liquids or solids to the atmosphere in such quantities as to cause air pollution.” The facility is subject to the general restrictions for the control of odors from the facility. This regulation is currently considered federally enforceable until it is removed from the State Implementation Plan (SIP), at which time it will be a state-only enforceable requirement.

Woodgrain Nampa’s facility will take all reasonable precautions to comply with this requirement by maintaining records of any odor complaint received and take action as expeditiously as practicable.

Open Burning – IDAPA 58.01.01.600-616

Woodgrain Nampa’s facility will comply with the requirements of the Rules for Control of Open Burning.

Rules for Control of Fugitive Dust – IDAPA 58.01.01.650

Woodgrain Nampa’s facility will take all reasonable precautions to prevent the generation of fugitive dust as outlined under IDAPA 58.01.01.650-651.

Distillate Fuel Oil Sulfur Limit – IDAPA 58.01.01.728

IDAPA regulations beginning at IDAPA 58.01.01.725 (Rules for Sulfur Content of Fuels) limit sulfur content of various fuels in Idaho. The distillate fuel oil combusted in the generators will be limited to 0.5 percent sulfur, per IDAPA 58.01.01.728. Ultra low sulfur diesel fuel will be used in emergency generators.

General Rules – IDAPA 58.01.01.651

“All reasonable precautions shall be taken to prevent particulate matter from becoming airborne. In determining what is reasonable, consideration will be given to factors such as the proximity of dust emitting operations to human habitations and/or activities, the proximity to mandatory Class I Federal Areas and atmospheric conditions which might affect the movement of particulate matter. Some of the reasonable precautions may include, but are not limited to, the following:”

Use of Water or Chemicals – IDAPA 58.01.01.651.01

“Use, where practical, of water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the grading of roads, or the clearing of land.”

Application of Dust Suppressants – IDAPA 58.01.01.651.02

“Application, where practical, of asphalt, oil, water or suitable chemicals to, or covering of dirt roads, material stockpiles, and other surfaces which can create dust.”

Use of Control Equipment – IDAPA 58.01.01.651.03

“Installation and use, where practical, of hoods, fans and fabric filters or equivalent systems to enclose and vent the handling of dusty materials. Adequate containment methods should be employed during sandblasting or other operations.”

Covering of Trucks – IDAPA 58.01.01.651.04

“Covering, when practical, open bodied trucks transporting materials likely to give rise to airborne dusts.”

Paving – 58.01.01.651.05

“Paving of roadways and their maintenance in a clean condition, where practical.”

Removal of Materials - IDAPA 58.01.01.651.06

“Prompt removal of earth or other stored material from streets, where practical.”

The Woodgrain Nampa facility will monitor and maintain records of the frequency and method(s) used (i.e., water) to reasonably control fugitive emissions. Records will be maintained of all fugitive dust complaints received. Appropriate corrective action will be taken as expeditiously as practicable after receipt of a valid complaint. The records will include, at a minimum, the date that each complaint was received and a description of the following: the complaint, the facilities assessment of the validity of the complaint, any corrective action taken, and the date that corrective action was taken.

7.0 EMISSION ESTIMATES

Since there have not been any major modifications or new construction projects which would significantly affect the existing emission inventory which was included in the facility's Tier II Operating Permit and Permit to Construct Application No. T2-050033, IDEQ is not requesting a new facility-wide emission inventory. However, since the facility removed the veneer drying unit and to account for emergency fire pump emissions, an updated facility emission inventory is included in Appendix E.

The potential to emit (PTE) for materials handling emissions shown in pounds per hour (lb/hr) and tons per year (tpy) were taken from the 2006 statement of basis (T2-050033). The PTE in tpy for other emission sources (except for the fire pump engine) were also taken from the 2006 statement of basis (T2-050033).

Air Toxics/Hazardous Air Pollutants (HAP)

Under the National Emission Standards for Hazardous Air Pollutants (NESHAP) Area sources of hazardous air pollutants are defined as those facilities that emit less than 10 tons per year of any individual hazardous air pollutant or less than 25 tons per year of any combination of hazardous air pollutants. Major sources subject to NESHAP are defined as those facilities emitting, or having the potential to emit, 10 tons per year or more of one HAP or 25 tons per year or more of multiple HAPs.

To determine if the Woodgrain Nampa facility is classified as an Area or Major source under NESHAP, HAPs emissions were calculated for the boiler, space heaters, and paint drying oven. This estimated value would be considered the potential to emit; operating 8,760 hours per year for each piece of equipment. Emission estimates are included in Appendix E.

Greenhouse Gases

On November 8, 2010, EPA signed a rule that finalized greenhouse gas (GHG) reporting requirements. Facilities must report GHG emissions if they meet the definition of one of the identified industry segments and emits 25,000 Metric Tons (MT) CO₂e (CO₂ equivalent) or more per year in combined GHG emissions. To determine if the Woodgrain Nampa facility is subject to GHG reporting requirements, GHG emissions were calculated for combustion sources using potential to emit; operating 8,760 hours per year. Emission estimates are included in Appendix E.



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	Woodgrain Millwork, Inc.		
2. Facility Name	Nampa Facility	3. Facility ID No.	027-00060
4. Brief Project Description - One sentence or less	Renew Tier II Operating Permit / Permit to Construct # T2-050033 and convert all operations to a PTC		

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.: T2-050033 Date Issued: 10/5/06
 Required by Enforcement Action: Case No.: _____

6. Minor PTC Major PTC

FORMS INCLUDED

Included	N/A	Forms	DEQ Verify
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Form CSPTC – Cover Sheet	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Form GI – Facility Information	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Form EU0 – Emissions Units General	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Form EU1– Industrial Engine Information Please specify number of EU1s attached: <u>1</u>	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form EU2– Nonmetallic Mineral Processing Plants Please specify number of EU2s attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form EU3– Spray Paint Booth Information Please specify number of EU3s attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form EU4– Cooling Tower Information Please specify number of EU3s attached: _____	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Form EU5 – Boiler Information Please specify number of EU4s attached: <u>1</u>	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form CBP– Concrete Batch Plant Please specify number of CBPs attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form HMAP – Hot Mix Asphalt Plant Please specify number of HMAPs attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	PERF – Portable Equipment Relocation Form	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form AO – Afterburner/Oxidizer	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form CA – Carbon Adsorber	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form CYS – Cyclone Separator	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form ESP – Electrostatic Precipitator	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Form BCE– Baghouses Control Equipment	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form SCE– Scrubbers Control Equipment	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form VSCE – Venturi Scrubber Control Equipment	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form CAM – Compliance Assurance Monitoring	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Forms EI– Emissions Inventory	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	PP – Plot Plan	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Forms MI1 – MI4 – Modeling (Excel workbook, all 4 worksheets)	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Form FRA – Federal Regulation Applicability	<input type="checkbox"/>

Instructions for Form CSPTC

This form is the cover sheet for an air quality permit application. It provides DEQ with basic information regarding the company and the proposed permitting action. This form helps DEQ efficiently determine whether the application is administratively complete. This form also provides the applicant with a list of forms available to aid the applicant to successfully submit a complete application.

Company Name, Facility Name, and Facility ID Number

- 1-3. Provide the name of your company, the name of the facility (if different than company name), and the facility identification (ID) number (Facility ID No.) in the boxes provided. The facility ID number is also known as the AIRS number or AIRS/AFS number (example: 095-00077). If you already have a permit, the facility ID number is located in the upper right hand corner of the cover page. The facility ID number must be provided unless your facility has not received one, in which case you may leave this box empty. **Use these same names and ID number on all forms.** This is useful in case any pages of the application are separated.
4. Provide a brief description of this permitting project in one sentence or less. Examples might be "Install/construct a new boiler" or "Increase the allowable process throughput." **This description will be used by DEQ as a unique identifier for this permitting project, in conjunction with the name(s) and ID number referenced in 1-3.** You will need to put this description, using the exact same words, on all other forms that are part of this project application. This is useful in case any pages of the application are separated.

Permit Application Type

5. Provide the reason you are submitting the permit application by checking the appropriate box (e.g., a new facility being constructed, a new source being constructed at an existing facility, an unpermitted existing source (as-built) applying for a permit for the first time, a permitted source to be modified, or the permit application is the result of an enforcement action, in which case provide the case number). If you are modifying an existing permitted source, provide the number and issue date of the most recent permit.

If this PTC is for a Tier I source issued pursuant to the procedures contained at IDAPA 58.01.01.209.05.c, the source or modification may operate upon submittal of a Tier I Administrative Amendment issued pursuant to IDAPA 58.01.01.381.

6. Indicate if the application is a minor permit to construct application or a major permit to construct application by checking the appropriate box (e.g., major PTC or minor PTC). If the permit to construct application is for a major new source or major modification, you must ensure that all necessary information required by IDAPA 58.01.01.202, and .204, or .205, as applicable, is provided.

Forms Included

Check the "Included" box for each form included in this permit to construct application. If there are multiples of a form for multiple units of that type, check the box and fill in the number of forms in the blank provided.

The "N/A" box should only be checked if the form is absolutely unnecessary to complete the application. Additional information may be requested.

Application Fee

All applicants for a PTC shall submit a PTC application fee of \$1000.00 to DEQ at the time of the original submission of the application as required by IDAPA 58.01.01.224. An application fee is not required for exemption applicability determinations, typographical errors, and name or ownership changes. An application fee can be paid by check, credit card, or Electronic Funds Transfer (EFT). If you choose to pay by credit card or EFT, call DEQs Fiscal Office to complete the necessary paperwork. Paper checks must be submitted with the original application as described below.

Submit Application

When complete, enclose a check for the application fee along with the hardcopy application certified by a responsible official (as defined in IDAPA 58.01.01.006.94), and send to:

Air Quality Program Office – Application Processing
Department of Environmental Quality
1410 N. Hilton
Boise, ID 83706-1255



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:
Woodgrain Millwork, Inc	Nampa Facility
3. Brief Project Description:	Renew Tier II Operating Permit /Permit to Construct # T2-050033 and convert all operations to a PTC

FACILITY INFORMATION

4. Primary Facility Permit Contact Person/Title	Mike Ball	Vice President
5. Telephone Number and Email Address	208-467-5221 ext. 110	mball@woodgrain.com
6. Alternate Facility Contact Person/Title	Greg Wood	Maintenance Manager / Engineer
7. Telephone Number and Email Address	208-476-5221 ext. 104	gwood@woodgrain.com
8. Address to Which the Permit Should be Sent	P.O. Box 9489	
9. City/County/State/Zip Code	Nampa Canyon	Idaho 83652
10. Equipment Location Address (if different than the mailing address above)	1201 W. Karcher Rd	
11. City/County/State/Zip Code	Nampa Canyon	Idaho 83652
12. Is the Equipment Portable?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
13. SIC Code(s) and NAICS Code	Primary SIC: 2431	Secondary SIC: NAICS: 321911
14. Brief Business Description and Principal Product	Millwork, Wood Door Manufacturing	
15. Identify any adjacent or contiguous facility that this company owns and/or operates	None	
16. Specify the reason for the application	<input checked="" type="checkbox"/> Permit to Construct (PTC) <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>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.</p> <input type="checkbox"/> Incorporate the PTC at the time of the Tier I renewal <input type="checkbox"/> Co-process the Tier I modification and PTC <input type="checkbox"/> Administratively amend the Tier I permit to incorporate the PTC upon your request (IDAPA 58.01.01.209.05.a, b, or c) </div> <input type="checkbox"/> Tier I Permit <input type="checkbox"/> Tier II Permit <input type="checkbox"/> 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	Mike Ball	Vice President
18. Responsible Official's Signature	<i>Mike Ball</i>	Date: 12-15-11
19. <input checked="" type="checkbox"/> Check here to indicate that you would like to review the draft permit prior to final issuance.		

Instructions for Form GI

This form is used by DEQ to identify a company or facility, equipment locations, and personnel involved with the permit application. Additional information may be requested.

- 1 – 3. Please fill in 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.
4. Name of the primary person who should be contacted regarding this permit.
5. Telephone number and e-mail address of person listed in 4.
6. Name of the person who should be contacted if the person listed in 4 is not available.
7. Telephone number and e-mail address of person listed in 6.
- 8 - 9. Address to which DEQ should mail the permit.
- 10 – 11. Physical address at which the equipment is located (if different than 9).
12. If the equipment is portable (such as an asphalt plant), identify by marking "yes." If there are other locations where you know the portable equipment will be used, attach a Portable Equipment Relocation Form (PERF) to list those locations. An electronic copy of the PERF can be obtained from the DEQ website http://www.deq.idaho.gov/air/permits_forms/forms/ptc_relocation.pdf (or http://www.deq.idaho.gov/air/permits_forms/forms/ptc_relocation.doc for Word format).
Important note: In addition to being submitted with this PTC application, a PERF must also be completed and filed at DEQ at least 10 days in advance of relocating any of the equipment covered in this application.
13. Provide the Standard Industrial Classification (SIC) code and the North American Industry Classification System (NAICS) code for your plant. NAICS codes can be found at <http://www.census.gov/eprd/naics02/naicod02.htm>. If a secondary SIC code is applicable, provide it also.
14. Describe the primary activity and principal product of your business as it relates to the SIC code or NAISC code listed in line 13.
15. Please indicate if there are any other branches or divisions of this company located on adjacent or contiguous properties.
16. Check the box which describes the type of permit application.

For existing Tier I facilities that are applying for a PTC the applicant must specify how the PTC will be incorporated to the Tier I permit (IDAPA 58.01.01.209.05; Call the Air Permit Hotline if you have questions 1-877-573-7648).
- 17 – 18. Provide the name and title of the facilities responsible official. Responsible official is defined in IDAPA 58.01.01.006.97. The Responsible official must sign and date the application before it is submitted to DEQ.
19. If you would like to review a draft before the final permit is issued, check this box.



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

IDENTIFICATION

1. Company Name: Woodgrain Millwork, Inc	2. Facility Name: Nampa Facility	3. Facility ID No: 027-00060
4. Brief Project Description: Renew Tier II Operating Permit / Permit to Construct #T2-050033 & Convert to PTC		

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5. Emissions Unit (EU) Name:	HEATERS		
6. EU ID Number:	HEATERS		
7. EU Type:	<input type="checkbox"/> New Source <input type="checkbox"/> Unpermitted Existing Source <input checked="" type="checkbox"/> Modification to a Permitted Source -- Previous Permit #:T2-050033 Date Issued: October 5, 2006		
8. Manufacturer:	VARIOUS		
9. Model:	VARIOUS		
10. Maximum Capacity:	10 NG SPACE HEATERS, 3.30 MMBT/HR COMBINED		
11. Date of Construction:	1986		
12. Date of Modification (if any):	2004		
13. Is this a Controlled Emission Unit?	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes If Yes, complete the following section. If No, go to line 22.		

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:			
15. Date of Installation:	16. Date of Modification (if any):		
17. Manufacturer and Model Number:			
18. ID(s) of Emission Unit Controlled:			
19. Is operating schedule different than emission units(s) involved?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
20. Does the manufacturer guarantee the control efficiency of the control equipment?	<input type="checkbox"/> Yes <input type="checkbox"/> No (If Yes, attach and label manufacturer guarantee)		

Control Efficiency	Pollutant Controlled					
	PM	PM10	SO ₂	NO _x	VOC	CO

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22. Actual Operation:	8760
23. Maximum Operation:	8760

REQUESTED LIMITS

24. Are you requesting any permit limits?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If Yes, indicate all that apply below)	
<input type="checkbox"/> Operation Hour Limit(s):		
<input type="checkbox"/> Production Limit(s):		
<input type="checkbox"/> Material Usage Limit(s):		
<input type="checkbox"/> Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports	
<input type="checkbox"/> Other:		
25. Rationale for Requesting the Limit(s):		

Instructions for Form EU0

This form provides DEQ with information about an emissions unit. An emissions unit is the equipment or process that generates emissions of regulated air pollutant(s). This form is used by the permit writer to become familiar with the emissions unit (EU). This form is also used by DEQ to identify the control equipment and the emission point (stack or vent) used for the emission unit(s) proposed in this permit application. This form also asks for supporting documents to verify stated control efficiencies and details about the emission point. Additional information may be requested.

- 1 - 4. Provide the same company name, facility name (if different), 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.
5. Provide the name of the emissions unit (EU), such as "Union boiler," etc. A separate EU0 form is required for each emissions unit.
6. Provide the identification (ID) number of the EU. It 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 any other air quality permit application(s) (e.g., operating permit application) to identify this EU.
7. Indicate the type of EU by checking the appropriate box (e.g., a new source to be constructed, an unpermitted existing source (as-built) applying for the first time, or an existing permitted source to be modified). If the EU is being modified, indicate on the form the most recent permit issued for the EU.
8. Provide the manufacturer's name for the EU. If the EU is custom-designed or homemade, indicate so.
9. Provide the model number of the EU. If the EU is custom-designed or homemade, indicate so.
10. Provide the maximum capacity of the EU. For example, a boiler's rated capacity may be modified in units of MMBtu/hr in terms of heat input of natural gas; an assembly line capacity may be in parts produced per day. Capacity should be based on a rated nameplate or as stated in the manufacturer's literature.
11. The date of construction is the month, day, and year in which construction or modification was commenced.

Definitions:

Construction fabrication, erection, or installation of an affected facility.

Commenced an owner or operator has undertaken a continuous program of construction or modification or that an owner or operator has entered into a contractual obligation to undertake and complete, within a reasonable time, a continuous program of construction or modification.

Modification any physical change in, or change in the method of operation of, an existing facility which increases the amount of any air pollutant (to which a standard applies) emitted to the atmosphere by that facility or which results in the emission of any air pollutant (to which a standard applies) to the atmosphere not previously emitted.

12. If the EU has been or will be modified, provide the month, day, and year of the most recent or future modification as defined in IDAPA 58.01.01.006.
13. Indicate if emissions from the EU are controlled by air pollution control equipment. If the answer is yes, complete the next section. If the answer is no, go to line 18.
14. Provide the name of the air pollution control equipment (e.g., wet scrubber) and the control equipment's identification number. This identification number should be unique to this air pollution control equipment and should be used consistently throughout this and all other air quality permit applications (e.g., operating permit application) to identify this air pollution control equipment.

15. Provide the date the air pollution control equipment was installed.
16. If the air pollution control equipment has been modified, provide the date of the modification.
17. Provide the name of the manufacturer and the model number for the air pollution control equipment.
18. If this air pollution control equipment controls emissions from more than this EU, provide the identification number(s) of the other EU(s).
19. Indicate if this air pollution control equipment operates on a schedule different from the EU(s) it controls.
20. Indicate if the air pollution control manufacturer guarantees the control efficiency of the control equipment. If the answer is yes, attach the manufacturer's guarantee and label it with the air pollution control equipment identification number. Indicate the control efficiency for the target pollutant(s).
21. If the control efficiency of the air pollution control equipment is not guaranteed, attach the design specifications and any performance data to support the control efficiency stated in part 16. Label the supporting documentation with the air pollution control equipment identification number.
22. Provide the projected actual operating schedule for the emission unit in hours/day, hours/year, or other.
23. Provide the maximum operating schedule for the emission unit in hours/day, hours/year, or other.
24. If you are requesting to have limits placed on this EU, mark "Yes." Then, check the applicable requested limit(s) and provide the limit(s). For example, production limits may be in terms of parts produced per year, material usage limits may be in gallons per day.
25. Please provide the reason you are requesting limits, if any. This helps DEQ and the applicant determine whether the limits are necessary, and if they will accomplish the desired purpose. Provide supporting documentation (calculations, modeling assessment, regulatory review, etc.) for each limit requested.



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

IDENTIFICATION

1. Company Name: Woodgrain Millwork, Inc	2. Facility Name: Nampa Facility	3. Facility ID No: 027-00060
4. Brief Project Description: Renew Tier II Operating Permit / Permit to Construct #T2-050033 & Convert to PTC		

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5. Emissions Unit (EU) Name:	PAINT DRYING OVEN		
6. EU ID Number:	PAINT DRYING OVEN		
7. EU Type:	<input type="checkbox"/> New Source	<input type="checkbox"/> Unpermitted Existing Source	
	<input checked="" type="checkbox"/> Modification to a Permitted Source – Previous Permit #:PTC -040036		Date Issued: April 15, 2005
8. Manufacturer:	AES		
9. Model:	CDA100111GI		
10. Maximum Capacity:	0.48 MMBTU/HR		
11. Date of Construction:	MAY 2003		
12. Date of Modification (if any):	N/A		
13. Is this a Controlled Emission Unit?	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes	If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:						
15. Date of Installation:			16. Date of Modification (if any):			
17. Manufacturer and Model Number:						
18. ID(s) of Emission Unit Controlled:						
19. Is operating schedule different than emission units(s) involved? <input type="checkbox"/> Yes <input type="checkbox"/> No						
20. Does the manufacturer guarantee the control efficiency of the control equipment? <input type="checkbox"/> Yes <input type="checkbox"/> No (If Yes, attach and label manufacturer guarantee)						
Control Efficiency	Pollutant Controlled					
	PM	PM10	SO ₂	NO _x	VOC	CO

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22. Actual Operation:	8760
23. Maximum Operation:	8760

REQUESTED LIMITS

24. Are you requesting any permit limits?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	(If Yes, indicate all that apply below)
<input type="checkbox"/> Operation Hour Limit(s):			
<input type="checkbox"/> Production Limit(s):			
<input type="checkbox"/> Material Usage Limit(s):			
<input type="checkbox"/> Limits Based on Stack Testing: Please attach all relevant stack testing summary reports			
<input type="checkbox"/> Other:			
25. Rationale for Requesting the Limit(s):			



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

Emissions Units - Industrial Boiler Information Form EU5

Revision 5
 08/28/08

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

IDENTIFICATION

1. Company Name: Woodgrain Millwork, Inc	2. Facility Name: Nampa Facility	3 Facility ID No: 027-00060
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4. Brief Project Description:

EXEMPTION

Please see IDAPA 58.01.01.222 for a list of industrial boilers that are exempt from Permit to Construct requirements.

BOILER (EMISSION UNIT) DESCRIPTION AND SPECIFICATIONS

5. Type of Request: <input type="checkbox"/> New Unit <input type="checkbox"/> Unpermitted Existing Unit <input checked="" type="checkbox"/> Modification to a Unit with Permit #:		
6. Use of Boiler: <input checked="" type="checkbox"/> % Used For Process <input type="checkbox"/> % Used For Space Heat <input type="checkbox"/> % Used For Generating Electricity <input type="checkbox"/> Other:		
7. Boiler ID Number: Boiler 1	8. Rated Capacity: <input checked="" type="checkbox"/> 2.52 Million British Thermal Units Per Hour (MMBtu/hr) <input type="checkbox"/> 1,000 Pounds Steam Per Hour (1,000 lb steam/hr)	
9. Construction Date: 1992	10. Manufacturer: Williams & Davis	11. Model: 780
12. Date of Modification (if applicable): n/a	13. Serial Number (if available): 6460	14. Control Device (if any): Note: Attach applicable control equipment form(s)

FUEL DESCRIPTION AND SPECIFICATIONS

15. Fuel Type	<input type="checkbox"/> Diesel Fuel (#) (gal/hr)	<input checked="" type="checkbox"/> Natural Gas (cf/hr)	<input type="checkbox"/> Coal (unit: /hr)	<input type="checkbox"/> Other Fuels (unit: /hr)
16. Full Load Consumption Rate				
17. Actual Consumption Rate				
18. Fuel Heat Content (Btu/unit, LHV)		1,020 BTU/SCF		
19. Sulfur Content wt%				
20. Ash Content wt%		N/A		

STEAM DESCRIPTION AND SPECIFICATIONS

21. Steam Heat Content	NA	NA		
22. Steam Temperature (°F)	N/A	N/A		
23. Steam Pressure (psi)	N/A	N/A		
24 Steam Type	N/A	N/A	<input type="checkbox"/> Saturated <input type="checkbox"/> Superheated	<input type="checkbox"/> Saturated <input type="checkbox"/> Superheated

OPERATING LIMITS & SCHEDULE

25. Imposed Operating Limits (hours/year, or gallons fuel/year, etc.):	8760 hours/yr
26. Operating Schedule (hours/day, months/year, etc.):	8760 hours/yr
27. NSPS Applicability: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If Yes, which subpart:

Instructions for Form EU5

Please refer to IDAPA 58.01.01.222 for a list of industrial boilers which are exempt from the Permit to Construct requirements.

- 1 – 4. Provide the same company name, facility name (if different), and facility ID number as on Form CS. This is useful in case any pages of the application are separated.

Boiler Description and Specification:

5. Indicate whether the unit is new, existing but unpermitted, or being modified.
6. Indicate the percentage of the steam used for process, space heat, generating electricity, or others.
7. Provide the boiler identification (ID) number. Each boiler in the application must have its own number. If boilers included in this permit application are not identical in make and model, fill out a separate EU5 form for each boiler. If the boilers are identical, attach a separate sheet labeled EU5A listing them by ID number and date of construction or modification. The boiler ID numbers should match the boiler ID numbers used on other construction permit applications and within this application. It can be any number. However, if you submitted an operating permit application, the numbers used for identification purposes in this application should be consistent with the ID numbers used in your operating permit application.
8. The boiler's rated capacity should be read from the boiler's nameplate or from the manufacturer's literature.
9. The date of construction of the emission unit is the date, month, and year in which construction or modification begins as defined in EU0 Form Instruction item 7.
10. Provide the name of the manufacturer of the boiler.
11. Provide the model number of the boiler. This number should be available from the nameplate of the boiler.
12. If the boiler has been or will be modified, give the date, month and year of the most recent or future modification.
13. Provide the manufacturer's serial number for this boiler, if available.
14. Provide the control device name and number if a pollution control device is attached to this emission unit. The name and number of the control device should be consistent with control equipment forms throughout the application. **Note: a separate control equipment form(s) should be attached for all applicable control equipment serving this unit.**

Fuel Description and Specifications:

15. Indicate the fuel type used by the boiler. If diesel fuel is used, you need to indicate the ranking number. If the boiler is a dual-fuel engine, please check all appropriate fuel type boxes in this row.
16. The full-load consumption rate is the fuel consumption rate at the boiler's rated capacity.
17. The actual consumption rate is the fuel consumption rate (usually daily average) under typical operational conditions.
18. Provide fuel net or lower heating value (LHV).
19. Provide the weight percentage of the sulfur content in the fuel.
20. Provide the weight percentage of the ash content in the fuel. For gaseous fuel, this information is not required.

Steam Description and Specifications:

21. Provide the steam heat content. This information is not required for gaseous or liquid fuel.
22. Provide the steam temperature in °F. This information is not required for gaseous or liquid fuel.
23. Provide the steam pressure in pound per square inch (psi). This information is not required for gaseous or liquid fuel.
24. Provide the steam type (i.e. saturated or superheated). This information is not required for gaseous or liquid fuel.

Operation Limits:

25. If any, indicate the operating limits you imposed on this boiler in the units of operating hours per year, or gallons fuel per hour, per year, etc.
26. Indicate your operation schedule for the projected maximum operation of the engine.
27. Provide NSPS (new source performance standards) applicability determination and, if applicable, subpart reference.



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: Woodgrain Millwork, Inc		2. Facility Name: Nampa Facility		
3. Brief Project Description: Renewal of Tier II Operating Permit /Permit to Construct # T2-050033, Convert to PTC				
ENGINE (EMISSION UNIT) DESCRIPTION AND SPECIFICATIONS				
4. Type of Unit: <input type="checkbox"/> New Unit <input checked="" type="checkbox"/> Unpermitted Existing Unit <input type="checkbox"/> Modification to a Unit with Permit #: _____ Date Issued: _____				
5. Engine Displacement: 7.0 (liters per cylinder)			6. Ignition Type: <input checked="" type="checkbox"/> Compression <input type="checkbox"/> Spark	
7. Use <input checked="" type="checkbox"/> Emergency <input type="checkbox"/> Non-Emergency				
8. Engine ID Number: Gen 1		9. Maximum Rated Engine Power: 220 Brake Horsepower (bhp)		
10. Construction Date: 1967		11. Manufacturer: Detroit Diesel (6-71)	12. Model: PTA-1SD-50	13. Model Year: 1967
14. Date of Modification (if applicable):		15. Serial Number (if available): 369362	16. Control Device (if any):	
FUEL DESCRIPTION AND SPECIFICATIONS				
17. Fuel Type	<input checked="" type="checkbox"/> Diesel Fuel (#2) (gal/hr)	<input type="checkbox"/> Gasoline Fuel (gal/hr)	<input type="checkbox"/> Natural Gas (cf/hr)	<input type="checkbox"/> Other Fuels (unit:)
18. Full Load Consumption Rate	6 gal/hr			
19. Actual Consumption Rate	n/a			
20. Sulfur Content wt%	15 PPM	N/A	N/A	
OPERATING LIMITS & SCHEDULE				
21. Imposed Operating Limits (hours/year, or gallons fuel/year, etc.): Tested annual for a maximum of 4 hours per day (annual flow test), and typically tested for 30 minutes each week = 26 + 4 = 50 hours per year. Assume max operations = 4 hrs per day and 100 hours per year				
22. Operating Schedule (hours/day, months/year, etc.): Once per month for 15 minutes				

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.



Complete this form for each baghouse. Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name Woodgrain Millwork, Inc	2. Facility Name: Nampa Facility
3. Brief Project Description: Renew Tier II Operating Permit / Permit to Construct # T2-050033 and convert All Operations to aPTC	

BAGHOUSE INFORMATION

4. Baghouse Manufacturer: Sabourin	5. Baghouse Model: SF-BV-500-S	6. Baghouse Equipment ID: BH3 - System 1
7 (a). Baghouse particulate matter emission concentration. Note: Provide information in 7(a)-(c) or answer question #8 below.	_____ gr/dscf	Manufacturers typically provide guarantees in grains per dry standard cubic foot (gr/dscf). Provide a copy of the guarantee, or other documentation, with the application along with a description of the types of bags that must be used to achieve the emission concentration. Emission concentrations less than 0.01 gr/dscf will receive additional scrutiny by DEQ and a source test of the baghouse may be required. If a guarantee is not provided then you must document how you obtained the emission concentration. Without documentation the application is not complete.
7 (b). Percentage PM ₁₀ Or Provide PM ₁₀ Emission Concentration	_____ % _____ gr/dscf	What percentage of the PM concentration listed in question #7(a) is PM ₁₀ . You must provide documentation as to how the percentage was determined (i.e per the baghouse manufacturer). Without documentation the application is not complete.
7 (c). Baghouse flow rate	_____ dscfm	Provide the baghouse flow rate in dry standard cubic feet per minute. Actual cubic feet per minute may be given in lieu of dscfm if it is documented that moisture content is insignificant. You must provide documentation as to how this flow rate was determined (i.e. per the exhaust fan manufacturer, combustion evaluation, etc.). Without documentation the application is not complete.
8. Baghouse particulate matter control efficiency. Note: Not needed if section #7 is completed.	n/a % PM control n/a % PM ₁₀ control	Applicant's providing the control efficiency of the baghouse must provide control efficiency for both PM and PM ₁₀ . Provide a copy of the control efficiency documentation with the application. Documentation must include a description of the types of bags that must be used to achieve the control efficiency. Without documentation the application is not complete.
9. Is the baghouse equipped with a bag leak detector?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If a bag leak detector is installed provide documentation on the leak detector, including; how the leak detector functions and what level of the output signal indicates that a bag is leaking. Without documentation the application is not complete.



DEQ AIR QUALITY PROGRAM
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Air Permit Hotline – 1-877-5PERMIT

Baghouse Control Equipment Form BCE
 Revision 6
 2/18/10

Complete this form for each baghouse. Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name Woodgrain Millwork, Inc	2. Facility Name: Nampa Facility
3. Brief Project Description: Renew Tier II Operating Permit / Permit to Construct # T2-050033 and convert All Operations to aPTC	

BAGHOUSE INFORMATION

4. Baghouse Manufacturer: Carter Day	5. Baghouse Model: CJ-2-144-RJ-120	6. Baghouse Equipment ID: BH 1 - System 5
7 (a). Baghouse particulate matter emission concentration. Note: Provide information in 7(a)-(c) or answer question #8 below.	_____ gr/dscf	Manufacturers typically provide guarantees in grains per dry standard cubic foot (gr/dscf). Provide a copy of the guarantee, or other documentation, with the application along with a description of the types of bags that must be used to achieve the emission concentration. Emission concentrations less than 0.01 gr/dscf will receive additional scrutiny by DEQ and a source test of the baghouse may be required. If a guarantee is not provided then you must document how you obtained the emission concentration. Without documentation the application is not complete.
7 (b). Percentage PM ₁₀ Or Provide PM ₁₀ Emission Concentration	_____ % _____ gr/dscf	What percentage of the PM concentration listed in question #7(a) is PM ₁₀ . You must provide documentation as to how the percentage was determined (i.e per the baghouse manufacturer). Without documentation the application is not complete.
7 (c). Baghouse flow rate	_____ dscfm	Provide the baghouse flow rate in dry standard cubic feet per minute. Actual cubic feet per minute may be given in lieu of dscfm if it is documented that moisture content is insignificant. You must provide documentation as to how this flow rate was determined (i.e. per the exhaust fan manufacturer, combustion evaluation, etc.). Without documentation the application is not complete.
8. Baghouse particulate matter control efficiency. Note: Not needed if section #7 is completed.	n/a % PM control n/a % PM ₁₀ control	Applicant's providing the control efficiency of the baghouse must provide control efficiency for both PM and PM ₁₀ . Provide a copy of the control efficiency documentation with the application. Documentation must include a description of the types of bags that must be used to achieve the control efficiency. Without documentation the application is not complete.
9. Is the baghouse equipped with a bag leak detector?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If a bag leak detector is installed provide documentation on the leak detector, including; how the leak detector functions and what level of the output signal indicates that a bag is leaking. Without documentation the application is not complete.



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Baghouse Control Equipment **Form BCE**

Revision 6
 2/18/10

Complete this form for each baghouse. Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name Woodgrain Millwork, Inc	2. Facility Name: Nampa Facility
3. Brief Project Description: Renew Tier II Operating Permit / Permit to Construct # T2-050033 and convert All Operations to aPTC	

BAGHOUSE INFORMATION

4. Baghouse Manufacturer: Carter Day	5. Baghouse Model: CJ2-144-RF-96	6. Baghouse Equipment ID: BH 2 - System 8
7 (a). Baghouse particulate matter emission concentration. Note: Provide information in 7(a)-(c) or answer question #8 below.	_____ gr/dscf	Manufacturers typically provide guarantees in grains per dry standard cubic foot (gr/dscf). Provide a copy of the guarantee, or other documentation, with the application along with a description of the types of bags that must be used to achieve the emission concentration. Emission concentrations less than 0.01 gr/dscf will receive additional scrutiny by DEQ and a source test of the baghouse may be required. If a guarantee is not provided then you must document how you obtained the emission concentration. Without documentation the application is not complete.
7 (b). Percentage PM ₁₀ Or Provide PM ₁₀ Emission Concentration	_____ % _____ gr/dscf	What percentage of the PM concentration listed in question #7(a) is PM ₁₀ . You must provide documentation as to how the percentage was determined (i.e per the baghouse manufacturer). Without documentation the application is not complete.
7 (c). Baghouse flow rate	_____ dscfm	Provide the baghouse flow rate in dry standard cubic feet per minute. Actual cubic feet per minute may be given in lieu of dscfm if it is documented that moisture content is insignificant. You must provide documentation as to how this flow rate was determined (i.e. per the exhaust fan manufacturer, combustion evaluation, etc.). Without documentation the application is not complete.
8. Baghouse particulate matter control efficiency. Note: Not needed if section #7 is completed.	n/a % PM control n/a % PM ₁₀ control	Applicant's providing the control efficiency of the baghouse must provide control efficiency for both PM and PM ₁₀ . Provide a copy of the control efficiency documentation with the application. Documentation must include a description of the types of bags that must be used to achieve the control efficiency. Without documentation the application is not complete.
9. Is the baghouse equipped with a bag leak detector?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If a bag leak detector is installed provide documentation on the leak detector, including; how the leak detector functions and what level of the output signal indicates that a bag is leaking. Without documentation the application is not complete.



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Baghouse Control Equipment Form BCE

Revision 6
 2/18/10

Complete this form for each baghouse. Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name Woodgrain Millwork, Inc	2. Facility Name: Nampa Facility
3. Brief Project Description: Renew Tier II Operating Permit / Permit to Construct # T2-050033 and convert All Operations to aPTC	

BAGHOUSE INFORMATION

4. Baghouse Manufacturer: MAC	5. Baghouse Model: 120W-MCF-361	6. Baghouse Equipment ID: BH 4 - System 10
7 (a). Baghouse particulate matter emission concentration. Note: Provide information in 7(a)-(c) or answer question #8 below.	_____ gr/dscf	<i>Manufacturers typically provide guarantees in grains per dry standard cubic foot (gr/dscf). Provide a copy of the guarantee, or other documentation, with the application along with a description of the types of bags that must be used to achieve the emission concentration. Emission concentrations less than 0.01 gr/dscf will receive additional scrutiny by DEQ and a source test of the baghouse may be required. If a guarantee is not provided then you must document how you obtained the emission concentration. Without documentation the application is not complete.</i>
7 (b). Percentage PM ₁₀ Or Provide PM ₁₀ Emission Concentration	_____ % _____ gr/dscf	<i>What percentage of the PM concentration listed in question #7(a) is PM₁₀. You must provide documentation as to how the percentage was determined (i.e per the baghouse manufacturer). Without documentation the application is not complete.</i>
7 (c). Baghouse flow rate	_____ dscfm	<i>Provide the baghouse flow rate in dry standard cubic feet per minute. Actual cubic feet per minute may be given in lieu of dscfm if it is documented that moisture content is insignificant. You must provide documentation as to how this flow rate was determined (i.e. per the exhaust fan manufacturer, combustion evaluation, etc.). Without documentation the application is not complete.</i>
8. Baghouse particulate matter control efficiency. Note: Not needed if section #7 is completed.	n/a % PM control n/a % PM ₁₀ control	<i>Applicant's providing the control efficiency of the baghouse must provide control efficiency for both PM and PM₁₀. Provide a copy of the control efficiency documentation with the application. Documentation must include a description of the types of bags that must be used to achieve the control efficiency. Without documentation the application is not complete.</i>
9. Is the baghouse equipped with a bag leak detector?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<i>If a bag leak detector is installed provide documentation on the leak detector, including; how the leak detector functions and what level of the output signal indicates that a bag is leaking. Without documentation the application is not complete.</i>



DEQ AIR QUALITY PROGRAM
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Emissions Units - Spray Paint Booth Information Form EU3

Revision 5
 08/28/08

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

IDENTIFICATION					
1. Company Name: Woodgarin WoodMill, Inc		2. Facility Name: Nampa Facility		3. Facility ID No: 027-00060	
4. Brief Project Description: Renew Tier II Operating Permit / Permit to Construct # T2050033 and Convert to PTC					
BOOTH INFORMATION					
5. Booth Type: <input type="checkbox"/> New Booth <input type="checkbox"/> Unpermitted Existing Booth <input checked="" type="checkbox"/> Modification to a Permitted Booth, Permit #: , Date Issued: PTC-040036, April 15, 2005					
6. Construction Date: May 2003					
SPRAY GUN DESCRIPTION AND SPECIFICATIONS					
Gun No.	7. Manufacturer	8. Model	9. Type	10. Transfer Eff. %	11. Rated Capacity (gal/hr)
1	Graco Standard Automatic	239780 Series A	Air Assisted	99%	11.5
2		Part No. No Model #			
3					
4					
Number of guns to be used simultaneously:					
SPRAY MATERIAL DESCRIPTION AND SPECIFICATIONS					
12. Type of Spray Material Used	13. Type of Material Coated	14. Max. Usage (gal/day)	15. Solid TAP/HAP Content (lb/gal)	16. VOC TAP/HAP Content (lb/gal)	17. MSD (Y/N)
Water Borne Primer	Wood Doors	11.5	Zero	17% VOC	N
REQUEST FOR PERMIT LIMITATIONS					
18. Are you requesting any permit limits? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes. If Yes, check all that apply below and fill in requested limit(s)					
<input type="checkbox"/> Operation Hour Limits:			<input type="checkbox"/> Production Limits:		
<input type="checkbox"/> Material Usage Limits:			<input type="checkbox"/> Other:		
19. Rationale for Requesting the Limit(s):					
EMISSION CONTROL DEVICE (FILTER ^o) DESCRIPTION AND SPECIFICATIONS					
Stack Served	20. Filter Manufacturer	21. Model	22. PM Control Efficiency(%) ^a	23. Dimension (Total Area, Thickness and Number of Filters)	
Stack 1	Integral Dry Filter Media	SM 33 84-30	n/a	28" x 80"	
Stack 2		High Efficiency			
Stack 3					
Stack 4					
Notes: a. Provide either stack test data or vendor's documentation to support the control efficiency specified above. b. Fill out and submit appropriate control equipment form(s) if this booth has a control device(s) other than a filter system.					
BOOTH OPERATING SCHEDULE (indicate hours/day, hours/year, or other)					
24. Actual Operation: 5,000 hours/year			25. Maximum Operation: 8,760 hours/year		

Instructions for Form EU3

Please refer to IDAPA 58.01.01.220 for a list of the general exemption criteria for Permit to Construct exemptions.

- 1 – 4. Provide the same company name, facility name (if different), facility ID number, and brief project description as on Form CS. This is useful if application pages are separated.

USE ATTACHMENT IF ADDITIONAL SPACE IS REQUIRED.

Booth Information:

5. Check whether this booth is a new booth to be constructed, an unpermitted existing booth (as-built) applying for a permit for the first time, or a permitted source to be modified.
6. Please provide the date of construction of the booth in month/day/year in which construction or modification begins as defined in EU0 Form Instruction item 7.

Spray Gun Description and Specifications:

7. Specify manufacturer(s) of the spray gun(s) used in your booth.
8. Specify the model(s) of the spray gun(s).
9. Indicate the type of the gun(s). The type can be airless, HVLP, air atomization, electrostatic/air atomization, etc.
10. Indicate the transfer efficiency of the painting operation.
11. A rated capacity is the maximum spray rate, usually in unit of oz/min, gal/hour, etc.

Spray Material Description and Specifications (Use Attachment if Additional Space is Required):

12. Indicate all the coating materials used in this booth including enamel, lacquer, clean-up solvent, primer, etc.
13. Indicate all of the types of material that are being coated as being metal, wood, plastic, etc.
14. Indicate the maximum usage of the materials listed in Item 8 in gallons per day.
15. Indicate the maximum solid toxic air pollutant/hazardous air pollutant (TAP/HAP) content that is used, or expected to be used, in pounds per gallon as it is applied.
16. Indicate the maximum volatile organic chemicals (VOC) TAP/HAP content that is used, or expected to be used, in pounds per gallon as it is applied.
17. Product formulation data sheet (provided from the manufacturer) or Material Safety Data Sheet (MSDS) for each painting material used in the booth should be attached with the application.

Request for Permit limitations:

18. If you wish to have permit limits placed on the paint booth, mark "Yes." Check each type of limit that applies to this emission unit and fill in the requested limit. For example, production limits may be in terms of parts produced per year, material usage limits may be in gallons per day.
19. Provide rationale for any requested limit(s). This helps the DEQ and the applicant determine whether the limits are necessary, and whether they will accomplish the desired purpose.

Emission Control Device (filter) Description and Specifications:

20. Provide the name of the filter manufacturer.
21. Provide the model of the filter according to manufacturer's literature.
22. Provide the control efficiency for particulate matter.
23. Provide the dimension of the filter in the total area and total thickness.

Booth Operation Schedule:

24. Provide operation schedule of the booth under a general condition.
25. Provide schedule for projected maximum operation.



DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
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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: Woodgrain Millwork, Inc
 Facility Name: Nampa Facility
 Facility ID No.: 027-00060
 Brief Project Description: Renew Tier II Operating Permit / Permit to Construct # T2-050033 and Convert All Operations to a PTC

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

Emissions units	Stack ID	PM ₁₀		SO ₂		NO _x		CO		VOC		Lead	
		lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
3.													
Point Source(s)													
Cyclone 1 - System 7	SYS 7	0.07	0.31										
Cyclone 2 - System 4	SYS 4	0.07	0.32										
Cyclone 3 - System 6	SYS 6	0.12	0.54										
Cyclone 4 - System 3	SYS 3	0.31	1.34										
Cyclone 5 - System 2	SYS 2	0.33	1.43										
Cyclone 7 - System 9	SYS 9	0.06	0.25										
Baghouse 1 - System 5	SYS 5	0.00	0.00										
Baghouse 2 - System 8	SYS 8	0.00	0.00										
Baghouse 3 - System 1	SYS 1	0.00	0.01										
Baghouse 4 - System 10	SYS 10	0.00	0.00										
Chip Bin	Chip Bin	1.78	7.82										
Flat Line Spray Booth	FLATLINE									17.77	77.85		
Flat Line Finishing Oven	PRM OVEN	0.00	0.02	0.00	0.00	0.02	0.21	0.04	0.18	0.02	0.01	0.00	0.00
Boiler	BOILER	0.00	0.08	0.00	0.01	0.08	1.10	0.21	0.93	0.01	0.06	0.00	0.00
Space Heaters (10)	HEATERS	0.02	0.07	0.00	0.01	0.07	0.99	0.19	0.83	0.00	0.05	0.00	0.00
Glue Lamination	GLUE LAM									2.28	10.01		
Miscellaneous Glue	GLUE									0.63	2.77		
Glue Catalyst	CATALYST									0.11	0.47		
Emergency Fire Pump(fuel 0.5%)	Fire Pump	0.48	0.02	0.45	0.02	6.84	0.34	1.50	0.07	0.55	0.03		
Total		3.24	12.23	0.45	0.04	7.01	2.84	1.94	2.00	21.37	91.25	0.00	0.00


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: Woodgrain Millwork, Inc
 Facility Name: Nampa Facility
 Facility ID No.: 027-00080

Brief Project Description: Renew Tier II Operating Permit / Permit to Construct # T2-050033 and Convert All Operations to a PTC

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

1.	2.	3.																		
		Point Source(s)																		
Emissions units	Stack ID	lb/hr	T/yr	PM ₁₀	lb/hr	T/yr	SO ₂	lb/hr	T/yr	NO _x	lb/hr	T/yr	CO	lb/hr	T/yr	VOC	lb/hr	T/yr	Lead	T/yr

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
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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: Woodgrain Millwork Inc.	2. Facility Name: Nampa Facility
3. Brief Project Description: Renew Tier II Operating Permit and Permit to Construct # T2-050033 and Convert All Operations to a PTC	

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): <input checked="" type="checkbox"/> 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): <input checked="" type="checkbox"/> 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.	<input checked="" type="checkbox"/> A detailed regulatory review is provided (Follow instructions and example). <input type="checkbox"/> 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.

Instructions for Form FRA

- Item 4 & 5.** It is important that facilities review the most recent federal regulations when submitting their permit application to DEQ. Current federal regulations can be found at the following Web site: http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?&c=ecfr&tpl=/ecfrbrowse/Title40/40tab_02.tpl.
- Item 6.** For each applicable subpart identified under items 4-5 conduct a complete regulatory analysis. The facility must follow the procedure given below or obtain permission from DEQ to provide the necessary information using an alternative procedure:
1. Retrieve a TEXT or PDF copy of the applicable federal regulation subpart(s) online at <http://www.gpoaccess.gov/cfr/retrieve.html>
 2. Copy and paste the regulation(s) into your DEQ air permit application.
 3. Highlight or underline sections in the regulation(s) that are applicable to the source(s).
 4. Under each section of the subpart, explain why the source is subject to the section, or why the source is not subject to the section. When providing the explanation use a different font than the regulation (i.e. **bold, italic**) so that it is easy for the reader to determine the text that the applicant has provided. An example NSPS regulatory analysis is attached. The applicant must provide all necessary information needed to determine applicability. If information is lacking or the analysis is incomplete the application will be determined incomplete.

EPA provides a web site dedicated to NSPS/NESHAP applicability determinations that may be useful to applicants. Follow this link to the applicability determination index [Clean Air Act Applicability Determination Index - Compliance Monitoring - EPA](#). Another useful source of information is the preamble to the regulation which is published in the Federal Register on the date the regulation was promulgated. Federal Registers may be found online at [Federal Register: Main Page](#). The date the regulation was published in the Federal Register is included in the footnotes of the regulation.
 5. DEQ will assist in identifying the applicable requirements that the applicant must include in the application but will not perform the required technical or regulatory analysis on the applicant's behalf. Applicants should contact the Air Quality Permit Hotline (1-877-573-7648) to discuss NSPS/NESHAP regulatory analysis requirements or to schedule a meeting.
 6. It also benefits facilities to document a non-applicability determination on federal air regulations which appear to apply to the facility but actually do not. A non-applicability determination will avoid future confusion and expedite the air permit application review. If you conduct an applicability determination and find that your activity is not NSPS or NESHAP affected facility an analysis should be submitted using the methods described above.
 7. **It is not sufficient to simply provide a copy of the NSPS or NESHAP. The applicant must address each section of the regulation as described above and as shown in the example that is provided.**

EXAMPLE OF A NSPS REGULATORY ANALYSIS

[Title 40, Volume 6]
[Revised as of July 1, 2008]
From the U.S. Government Printing Office via GPO Access
[CITE: 40CFR60]

TITLE 40--PROTECTION OF ENVIRONMENT

CHAPTER I--ENVIRONMENTAL PROTECTION AGENCY (CONTINUED)

PART 60 STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES--
Table of Contents

Subpart H Standards of Performance for Sulfuric Acid Plants

Sec.60.80 Applicability and designation of affected facility.

(a) The provisions of this subpart are applicable to each sulfuric acid production unit, which is the affected facility.

(b) Any facility under paragraph (a) of this section that commences construction or modification after August 17, 1971, is subject to the requirements of this subpart.

ACME Chemicals, Inc. is proposing to construct after August 17, 1971 a sulfuric acid plant which burns elemental sulfur as defined by 40 CFR 60.81(a). ACME is therefore affected by this subpart.

(Be sure to use the terms of the regulation to describe applicability; usually applicability is determined based on a specific date, definition of an affected facility, and rated input capacity. All of the applicability criteria must be addressed by the applicant.)

Note - if a determination of non-applicability is being submitted it is not necessary to address the remaining non-applicable regulatory sections. Be sure to provide the applicability determination in terms of the regulation (i.e. construction/modification date, rated input capacity, definition of affected facility).

Sec.60.81 Definitions.

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act and in subpart A of this part.

(a) Sulfuric acid production unit means any facility producing sulfuric acid by the contact process by burning elemental sulfur, alkylation acid, hydrogen sulfide, organic sulfides and mercaptans, or acid sludge, but does not include facilities where conversion to sulfuric acid is utilized primarily as a means of preventing emissions to the atmosphere of sulfur dioxide or other sulfur compounds.

(b) Acid mist means sulfuric acid mist, as measured by Method 8 of appendix A to this part or an equivalent or alternative method.

ACME Chemicals, Inc. has read and understands these definitions and used them in providing this regulatory analysis.

Sec.60.82 Standard for sulfur dioxide.

(a) On and after the date on which the performance test required to be conducted by Sec.60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected facility any gases which contain sulfur dioxide in excess of 2 kg per metric ton of acid produced (4 lb per ton), the production being expressed as 100 percent H₂/SO₄/.

ACME Chemicals, Inc. is subject to this standard and has provided a documented emission inventory (or manufacturer guarantee) which shows compliance.

Sec.60.83 Standard for acid mist.

(a) On and after the date on which the performance test required to be conducted by Sec.60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected facility any gases which:

(1) Contain acid mist, expressed as H₂/SO₄/, in excess of 0.075 kg per metric ton of acid produced (0.15 lb per ton), the production being expressed as 100 percent H₂/SO₄/.

ACME Chemicals, Inc. is subject to this standard and has provided a documented emission inventory (or manufacturer guarantee) which shows compliance.

(2) Exhibit 10 percent opacity, or greater.

ACME Chemicals, Inc. understands that this will become a permit condition and has supplied a manufacturer guarantee that the sulfuric acid plant will comply with this standard.

Sec.60.84 Emission monitoring.

(a) A continuous monitoring system for the measurement of sulfur dioxide shall be installed, calibrated, maintained, and operated by the owner or operator. The pollutant gas used to prepare calibration gas mixtures under Performance Specification 2 and for calibration checks under Sec.60.13(d), shall be sulfur dioxide (SO₂/). Method 8 shall be used for conducting monitoring system performance evaluations under Sec.60.13(c) except that only the sulfur dioxide portion of the Method 8 results shall be used. The span value shall be set at 1000 ppm of sulfur dioxide.

(b) The owner or operator shall establish a conversion factor for the purpose of converting monitoring data into units of the applicable standard (kg/metric ton, lb/ton). The conversion factor shall be determined, as a minimum, three times daily by measuring the concentration of sulfur dioxide entering the converter using suitable methods (e.g., the Reich test, National Air Pollution Control Administration Publication No. 999-AP-13) and calculating the appropriate conversion factor for each eight-hour period as follows:

$$CF=k[(1.000-0.015r)/(r-s)]$$

where:

CF=conversion factor (kg/metric ton per ppm, lb/ton per ppm).
 k=constant derived from material balance. For determining CF in metric units, k=0.0653. For determining CF in English units, k=0.1306.
 r=percentage of sulfur dioxide by volume entering the gas converter.
 Appropriate corrections must be made for air injection plants subject to the Administrator's approval.
 s=percentage of sulfur dioxide by volume in the emissions to the atmosphere determined by the continuous monitoring system required under paragraph (a) of this section.

(c) The owner or operator shall record all conversion factors and values under paragraph (b) of this section from which they were computed (i.e., CF, r, and s).

ACME Chemicals, Inc. is not proposing to utilize Sections 60.84(a)-(c) listed above to monitor emissions. Instead ACME Chemicals is utilizing 40 CFR 60.84(d) listed below to monitor emissions of sulfur dioxide.

(d) Alternatively, a source that processes elemental sulfur or an ore that contains elemental sulfur and uses air to supply oxygen may use the following continuous emission monitoring approach and calculation procedures in determining SO₂/ emission rates in terms of the standard. This procedure is not required, but is an alternative that would alleviate problems encountered in the measurement of gas velocities or production rate. Continuous emission monitoring systems for measuring SO₂/, O₂/, and CO₂/ (if required) shall be installed, calibrated, maintained, and operated by the owner or operator and subjected to the certification procedures in Performance Specifications 2 and 3. The calibration procedure and span value for the SO₂/ monitor shall be as specified in paragraph (b) of this section. The span value for CO₂/ (if required) shall be 10 percent and for O₂/ shall be 20.9 percent (air). A conversion factor based on process rate data is not necessary. Calculate the SO₂/ emission rate as follows:

$$Es/=(Cs/ S)/[0.265-(0.126 \%O_2/)-(A \%CO_2/)]$$

where:

Es/=emission rate of SO₂/, kg/metric ton (lb/ton) of 100 percent of H₂/SO₄/ produced.

Cs/=concentration of SO₂/, kg/dscm (lb/dscf).

S=acid production rate factor, 368 dscm/metric ton (11,800 dscf/ton) of 100 percent H₂/SO₄/ produced.

%O₂/=oxygen concentration, percent dry basis.

A=auxiliary fuel factor,

=0.00 for no fuel.

=0.0226 for methane.

=0.0217 for natural gas.

=0.0196 for propane.

=0.0172 for No 2 oil.

=0.0161 for No 6 oil.

=0.0148 for coal.

=0.0126 for coke.

%CO₂/= carbon dioxide concentration, percent dry basis.

Note: It is necessary in some cases to convert measured concentration units to other units for these calculations:

Use the following table for such conversions:

From--	To--	Multiply by--
g/scm.....	kg/scm.....	10 ⁻³
mg/scm.....	kg/scm.....	10 ⁻⁶
ppm (SO ₂).....	kg/scm.....	2.660x10 ⁻⁶
ppm (SO ₂).....	lb/scf.....	1.660x10 ⁻⁷

ACME Chemicals, Inc. has elected to use the monitoring requirements of the preceding section.

(e) For the purpose of reports under Sec.60.7(c), periods of excess emissions shall be all three-hour periods (or the arithmetic average of three consecutive one-hour periods) during which the integrated average sulfur dioxide emissions exceed the applicable standards under Sec.60.82.

ACME acknowledges that this section applies to the sulfuric acid plant.

Sec.60.85 Test methods and procedures.

(a) In conducting the performance tests required in Sec.60.8, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this part or other methods and procedures as specified in this section, except as provided in Sec.60.8(b). Acceptable alternative methods and procedures are given in paragraph (c) of this section.

(b) The owner or operator shall determine compliance with the SO₂/ acid mist, and visible emission standards in Sec. Sec. 60.82 and 60.83 as follows:

(1) The emission rate (E) of acid mist or SO₂/ shall be computed for each run using the following equation:

$$E = (CQ_{sd}) / (PK)$$

where:

E=emission rate of acid mist or SO₂/ kg/metric ton (lb/ton) of 100 percent H₂/SO₄/ produced.

C=concentration of acid mist or SO₂/, g/dscm (lb/dscf).

Q_{sd}=volumetric flow rate of the effluent gas, dscm/hr (dscf/hr).

P=production rate of 100 percent H₂/SO₄/, metric ton/hr (ton/hr).

K=conversion factor, 1000 g/kg (1.0 lb/lb).

(2) Method 8 shall be used to determine the acid mist and SO₂/ concentrations (C's) and the volumetric flow rate (Q_{sd}/) of the effluent gas. The moisture content may be considered to be zero. The sampling time and sample volume for each run shall be at least 60 minutes and 1.15 dscm (40.6 dscf).

(3) Suitable methods shall be used to determine the production rate (P) of 100 percent H₂/SO₄/ for each run. Material balance over the production system shall be used to confirm the production rate.

(4) Method 9 and the procedures in Sec.60.11 shall be used to determine opacity.

(c) The owner or operator may use the following as alternatives to

the reference methods and procedures specified in this section:

(1) If a source processes elemental sulfur or an ore that contains elemental sulfur and uses air to supply oxygen, the following procedure may be used instead of determining the volumetric flow rate and production rate:

(i) The integrated technique of Method 3 is used to determine the O₂/ concentration and, if required, CO₂/ concentration.

(ii) The SO₂/ or acid mist emission rate is calculated as described in Sec.60.84(d), substituting the acid mist concentration for Cs/ as appropriate.

ACME Chemicals, Inc. acknowledges that performance tests shall be conducted as specified above.

APPLICABLE REQUIREMENTS

A regulatory analysis was performed for the Woodgrain Nampa facility to determine the applicability of the state and federal air quality regulations. The regulatory applicability determinations are included in this section.

The following sections address air quality regulatory compliance requirements for the one (1) emergency diesel fire pump engine, one (1) 2.52 MMBtu/hr natural gas-fired boiler, one (1) natural gas-fired Water-Borne Prime Line with AES Infrared Drying oven, and three (3) ASTs. As described below, the sources comply with the applicable Idaho air quality regulations in Idaho Administrative Procedure Act (IDAPA) 58.01.01, as well as U.S. Environmental Protection Agency (EPA) Federal Regulations.

Emission Units	Source Description	Emission Control	Applicable Regulations
1	Water-Borne Prime Line with AES Infrared Drying System, natural gas fired oven, 480,000 BTU/hr	2 Interlocked Filters	None ¹
2	Boiler, natural gas fired with maximum heat input rate of 2.53 MMBTU/hr	None	None ^{2,4}
3	Emergency Fire Pump (CI), 220 hp, installed in 1967	None	None ^{3,5}
4	Wood processing and handling operations	Cyclones and Baghouses	None
5	Above ground storage tanks (ASTs)	None	None ⁶

Natural Emission Standards for Wood Building Products Surface Coating Operations 40 CFR Part 63, Subpart QQQQ

- ¹ 40 CFR Part 63, Subpart QQQQ, Natural Emission Standards for Wood Building Products Surface Coating Operations is not applicable. The Woodgrain Nampa facility is an Area Source and is not subject to 40 CFR Part 63, Subpart QQQQ.

Standard of Performance for Small Industrial-Commercial-Institutional Steam Generating Units – 40 CFR 60 Subpart Dc

- ² The natural gas-fired 2.53 MMBtu/Hr boiler is not subject to 40 CFR Part 60, Subpart Dc. According to § 60.40c, this subpart applies to boilers with heat input greater than 10 million Btu per hour (MMBtu/hr), but no more than 100 MMBtu/hr. The boiler at the Woodgrain Nampa facility is rated at 2.53 MMBTU/hr.

National Emissions Standards for hazardous Air Pollutants – 40 CFR Part 63

- ⁴ The Woodgrain Nampa facility is classified as an area source subject to 40 CFR Part 63, Subpart JJJJJ (Boiler MACT at Area Sources). An area source is defined with PTE < 10 tpy for any single HAP or PTE < 25 tpy for total HAPs. The single natural gas-fired

boiler was evaluated for applicability to Subpart JJJJJ. In accordance with 40 CFR 63.11195 (e), a gas fired boiler is not subject to this subpart. A gas-fired boiler is defined as a boiler that burns gaseous fuels not combined with any solid fuels, burns liquid fuel only during periods of gas curtailment, gas supply emergencies, or periodic testing on liquid fuel. Therefore, it appears that the single natural gas-fired boiler will be exempt from the requirements of Subpart JJJJJ when combusting natural gas.

There are no other applicable NESHAP requirements that apply to the Woodgrain Nampa facility.

New Source Performance Standards – 40 CFR Part 60

- 3 40 CFR Part 60, Subpart III is not applicable. According to § 60.4200 (a)(2)(ii), this subpart is applicable to stationary compression ignition (CI) Emergency Fire Pumps, manufactured as a Certified National Fire Protection Association (NFPA) fire pump engine after July 1, 2006. The emergency fire pump at the Woodgrain Nampa facility was installed in 1967.
- 5 40 CFR Part 63, Subpart ZZZZ is not applicable. This existing emergency fire pump is located in an area source. According to § 63.6590 (b) (3)(vii), existing commercial emergency stationary RICE located at an area source of HAP emissions do not have to meet the requirements of Subpart zzzz including initial notification requirements.

Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) - 40 CFR Part 60 Subpart Kb

- 6 There is an NSPS standard for petroleum storage vessels constructed after July 23, 1984, Subpart Kb. This NSPS applies to tanks that have a storage capacity of 75m³ (19,813 gallons), or greater. The two diesel and one waste oil storage tank have a capacity of approximately 1,050 gallons. There are no storage tanks at the Woodgrain Nampa facility with a capacity greater than 19,813 gallons; therefore NSPS Subpart Kb does not apply.

Mandatory Reporting of Greenhouse Gases - 40 CFR Part 98 Subpart W

- 7 On November 8, 2010, EPA signed a rule that finalized greenhouse gas (GHG) reporting requirements. Facilities must report GHG emissions if they meet the definition of one of the identified industry segments and emits 25,000 Metric Tons (MT) CO₂e (CO₂ equivalent) or more per year in combined GHG emissions. An air emission inventory for GHGs was performed for the Woodgrain Nampa facility and was estimated to emit approximately 2,205 metric tons per year of CO₂e. This estimated value would be considered the potential to emit operating 8,760 hours per year for each piece of equipment.

The Woodgrain Nampa facility is not subject to the GHG reporting requirements of 40 CFR Part 98 Subpart W because facility emissions are less than 25,000 metric tons per year. A copy of the emission estimate is included in Appendix E with this renewal application.

IDAPA Regulations

Permit to Construct – IDAPA 58.01.01.201

The project does not meet the exemption criteria contained in IDAPA 58.01.01 Sections 220 through 223; therefore, a PTC is required.

Visible Emissions – IDAPA 58.01.01.625

This regulation states that any point of emission shall not have a discharge of any air pollutant for a period aggregating more than three minutes in any sixty minute period of greater than 20% opacity. The seven cyclones, four bag-houses, one chip bin, one natural gas-fired boiler, ten natural gas-fired space heaters, one glue lamination area, one door prime line, natural gas-fired drying oven, and one emergency diesel-fired water pump are subject to the visible emissions standard.

Control of Odors – IDAPA 58.01.01.775-776

“No person shall allow, suffer, cause, or permit the emissions of odorous gases, liquids or solids to the atmosphere in such quantities as to cause air pollution.” The facility is subject to the general restrictions for the control of odors from the facility. This regulation is currently considered federally enforceable until it is removed from the State Implementation Plan (SIP), at which time it will be a state-only enforceable requirement.

Woodgrain Nampa’s facility will take all reasonable precautions to comply with this requirement by maintaining records of any odor complaint received and take action as expeditiously as practicable.

Open Burning – IDAPA 58.01.01.600-616

Woodgrain Nampa’s facility will comply with the requirements of the Rules for Control of Open Burning.

Rules for Control of Fugitive Dust – IDAPA 58.01.01.650

Woodgrain Nampa’s facility will take all reasonable precautions to prevent the generation of fugitive dust as outlined under IDAPA 58.01.01.650-651.

Distillate Fuel Oil Sulfur Limit – IDAPA 58.01.01.728

IDAPA regulations beginning at IDAPA 58.01.01.725 (Rules for Sulfur Content of Fuels) limit sulfur content of various fuels in Idaho. The distillate fuel oil combusted in the generators will be limited to 0.5 percent sulfur, per IDAPA 58.01.01.728. Ultra low sulfur diesel fuel will be used in emergency generators.

General Rules – IDAPA 58.01.01.651

“All reasonable precautions shall be taken to prevent particulate matter from becoming airborne. In determining what is reasonable, consideration will be given to factors such as the proximity of dust emitting operations to human habitations and/or activities, the proximity to mandatory Class I Federal Areas and atmospheric conditions which might affect the movement of particulate matter. Some of the reasonable precautions may include, but are not limited to, the following:”

Use of Water or Chemicals – IDAPA 58.01.01.651.01

“Use, where practical, of water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the grading of roads, or the clearing of land.”

Application of Dust Suppressants – IDAPA 58.01.01.651.02

“Application, where practical, of asphalt, oil, water or suitable chemicals to, or covering of dirt roads, material stockpiles, and other surfaces which can create dust.”

Use of Control Equipment – IDAPA 58.01.01.651.03

“Installation and use, where practical, of hoods, fans and fabric filters or equivalent systems to enclose and vent the handling of dusty materials. Adequate containment methods should be employed during sandblasting or other operations.”

Covering of Trucks – IDAPA 58.01.01.651.04

“Covering, when practical, open bodied trucks transporting materials likely to give rise to airborne dusts.”

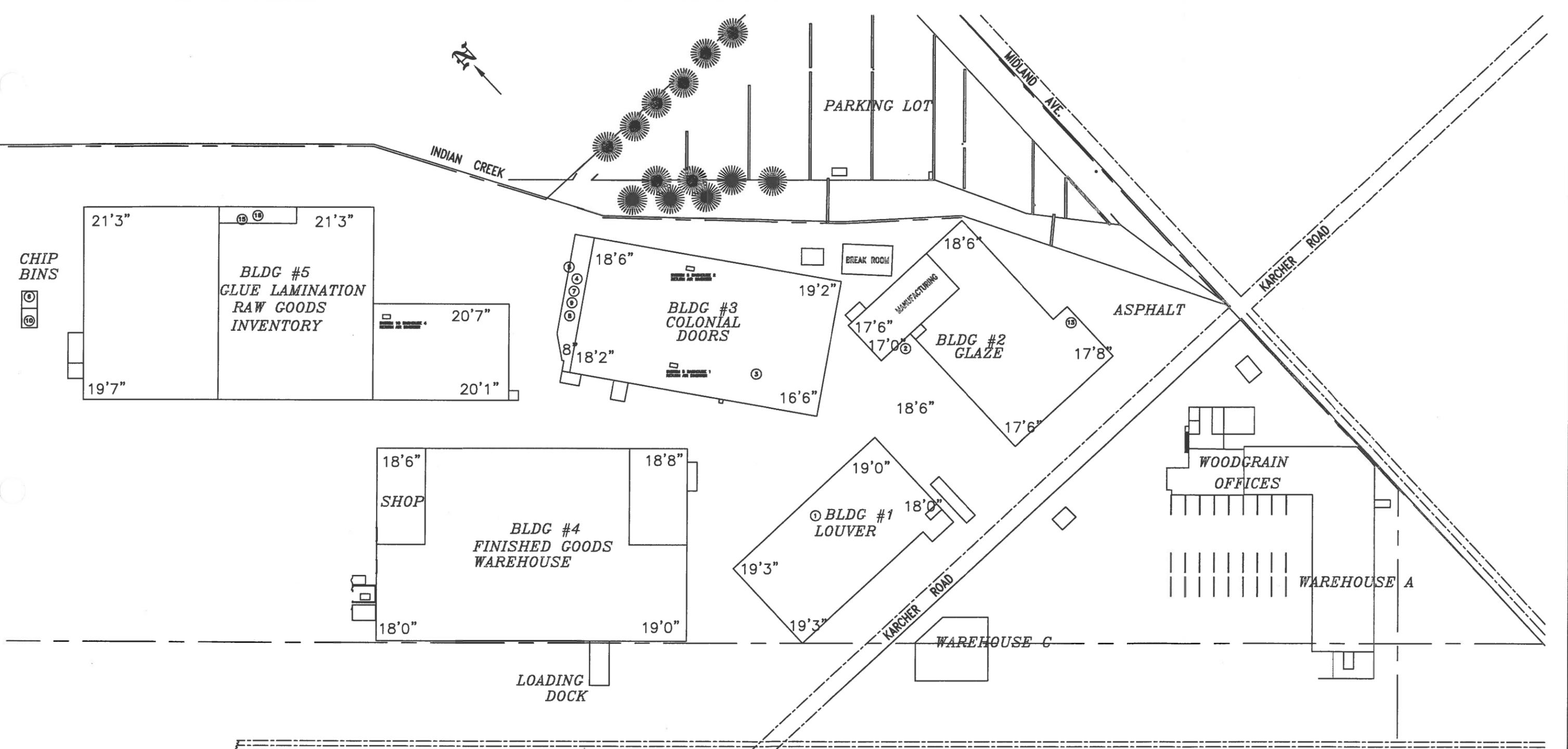
Paving – 58.01.01.651.05

“Paving of roadways and their maintenance in a clean condition, where practical.”

Removal of Materials - IDAPA 58.01.01.651.06

“Prompt removal of earth or other stored material from streets, where practical.”

The Woodgrain Nampa facility will monitor and maintain records of the frequency and method(s) used (i.e., water) to reasonably control fugitive emissions. Records will be maintained of all fugitive dust complaints received. Appropriate corrective action will be taken as expeditiously as practicable after receipt of a valid complaint. The records will include, at a minimum, the date that each complaint was received and a description of the following: the complaint, the facilities assessment of the validity of the complaint, any corrective action taken, and the date that corrective action was taken.



Legend	System	VENT HEIGHT ft.	System Velocity f/m	pipe diameter ft.	System cfm	Air Temp deg. F	Stack/Vent Diameter	Vent Velocity f/m	Vent Direction	Vent Device
7	BH 1	5	26	3500	3.0 24,740	65	4.0	1969	Horizontal	Abort Gate
8	BH 2	8	26	4900	3.0 34,636	65	4.0	2756	Horizontal	Abort Gate
6	BH 3	1	55	2800	1.5 4,948	60	1.5	2800	Horizontal	Vent
9	BH 4	10	26	3950	3.0 27,921	65	3.0	3950	Horizontal	Abort Gate
1	Cyclone 1	7	47	5000	2.0 15,708	60	3.5	1633	Horizontal	Elbow
2	Cyclone 2	4	19	5100	1.7 11,118	60	3.0	1573	Vertical	None
	Cyclone 3	6	48	4100	2.0 12,881	60	3.5	1339	Horizontal	Elbow
	Cyclone 4	3	59	4800	3.5 46,182	60	4.0	3675	Vertical	None
5	Cyclone 5	2	32	4900	2.2 18,055	60	3.5	1877	Horizontal	Elbow
10	Cyclone 7	9	62	2100	1.5 3,711	60	2.7	668	Horizontal	Elbow
15	PL Oven	23	1900	1.5 3,358	110	1.5	1900	Horizontal	Rain Hat	
16	Prime Line	30	2800	1.5 4,948	65	1.5	2800	Vertical	None	
13	Boiler	22	1300	1.0 1,021	195	1.0	1300	Vertical	Rain Hat	

BUILDING	SQUARE FOOTAGE
BUILDING 1	21,620
BUILDING 2	21,514
BUILDING 3	36,820
BUILDING 4	64,000
BUILDING 5	74,000
BREAK ROOM	1,600
WAREHOUSE A	18,189
WAREHOUSE C	4,585
OFFICE	5,778

UTM ZONE: _____ WOODGRAIN OFFICES
 UTM (X) COORDINATE (KM) _____ LATITUDE= 43°36'16"
 UTM (Y) COORDINATE (KM) _____ LONGITUDE= 116°35'34"

ITEM	QTY.	DRAWING NO.	DESCRIPTION
woodgrain millwork, inc. FRUITLAND, IDAHO			
TITLE PLOT PLAN, NAMPA DOOR PLANT			
MATERIAL		DRAWN	WALKER
		CHECKED	
		APPROVED	
ADDED GLUE LAM #2 AND MAC FILTER. WALKER, 8-1-96		TOLERANCES FRACTIONS 1/32 DECIMALS .005 ANGLES 1/2	SCALE 1" = 150' DRAWING NUMBER D0159009

Appendix D
Emission Estimates

Potential Emission Estimates Summary

Table D1

Emissions Unit	PM _{2.5}		PM ₁₀		SO ₂		NOx		CO		VOC		Lead	
	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)
Point Sources														
Flare 1	1.59	6.97	1.59	6.97	10.02	43.89	3.03	13.27	0.76	3.32	4.62	20.24	0	0
Flare 2	1.64	7.19	1.64	7.19	10.35	45.33	3.13	13.70	0.78	3.43	4.77	20.90	0	0
Wood chipper generator (Gen 1)	0.30	0.49	0.30	0.50	0.01	0.01	5.36	8.84	0.95	1.57	0.12	0.20	0	0
Power screen generator (Gen 2)	0.27	0.44	0.27	0.44	0.001	0.002	3.79	6.25	0.82	1.35	0.30	0.50	0	0
HHHW Generator (Gen 3)	0.13	0.033	0.13	0.033	0.0006	0.00016	1.85	0.46	0.40	0.10	0.15	0.04	0	0
Scales Generator (Gen 4)	0.20	0.050	0.20	0.050	0.001	0.00025	2.86	0.71	0.62	0.15	0.23	0.06	0	0
Fugitive Sources														
Wood chipper	0.521	0.859	0.521	0.859										
Power screen	0.0046	0.0075	0.0302	0.050										
Wood chipper storage piles	0.0015	0.0025	0.010	0.017										
Unpaved roads	2.02	3.40	27.06	45.54										
Paved roads	2.33	3.86	9.49	15.71										
Landfill operations-dozing	0.07	0.08	0.47	0.58										
Landfill-operations -grading	0.05	0.07	0.92	1.40										
Totals	9.13	23.45	42.63	79.34	20.38	89.23	20.02	43.23	4.33	9.92	10.19	41.94	-	-

Notes:

Paved roads is new

Facility Wide PTE Emission Inventory

Table D2 ACLF Facility Wide PTE Criteria Emissions

Criteria Pollutant	C-18 Generator Gen 1		Deutz Generator Gen 2		Kohler Generator Gen 4		Detroit Diesel Generator Gen 3		Flare 1		Flare 2	
	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)
PM	0.37	0.61	0.27	0.44	0.201	0.0502	0.13	0.0326	1.59	6.97	1.64	7.19
PM ₁₀	0.30	0.50	0.27	0.44	0.201	0.0502	0.13	0.0326	1.59	6.97	1.64	7.19
PM _{2.5}	0.30	0.49	0.27	0.44	0.201	0.0502	0.13	0.0326	1.59	6.97	1.64	7.19
CO	0.95	1.57	0.82	1.35	2.86	0.714	1.85	0.463	0.76	3.32	0.78	3.43
SO ₂	0.008	0.01	0.001	0.002	0.0010	0.000245	0.0006	0.000159	10.02	43.89	10.35	45.33
NO _x	5.36	8.84	3.79	6.25	0.62	0.1539	0.40	0.0998	3.03	13.27	3.13	13.70
VOC	0.12	0.20	0.30	0.50	0.23	0.0567	0.15	0.0368	4.62	20.24	4.77	20.90

Table D3 ACLF Facility Wide PTE Hazardous Air Pollutant Emissions

HAPS	C-18 Generator Gen 1		Deutz Generator Gen 2		Kohler Generator Gen 4		Detroit Diesel Generator Gen 3		Flare 1		Flare 2		Total		TDARA 585/586 EL	Exceeds EL
	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(Yes or NO)
1,1,1-Trichloroethane									3.92E-04	1.72E-03	4.05E-04	1.77E-03	7.97E-04	3.49E-03	1.27E+02	No
1,1,2,2-Tetrachloroethane									1.14E-03	5.00E-03	1.18E-03	5.16E-03	2.32E-03	1.02E-02	1.10E-05	Yes
1,1,2-Trichloroethane									8.17E-05	3.58E-04	8.44E-05	3.70E-04	1.66E-04	7.27E-04	4.20E-04	Yes
1,1-Dichloroethane (ethylidene dichloride)									1.42E-03	6.24E-03	1.47E-03	6.44E-03	2.90E-03	1.27E-02	2.50E-04	Yes
1,1-Dichloroethene (vinylidene chloride)									1.19E-04	5.20E-04	1.23E-04	5.37E-04	2.41E-04	1.06E-03	1.30E-04	Yes
1,2-Dichloroethane (ethylene dichloride)									2.48E-04	1.09E-03	2.57E-04	1.12E-03	5.05E-04	2.21E-03	2.50E-04	Yes
1,2-Dichloropropane (propylene dichloride)									1.25E-04	5.46E-04	1.29E-04	5.63E-04	2.53E-04	1.11E-03	2.31E+01	No
Acrylonitrile									3.09E-04	1.35E-03	3.19E-04	1.40E-03	6.27E-04	2.75E-03	6.53E+01	No
Benzene	4.13E-03	6.81E-03	8.01E-04	1.32E-03	6.05E-04	1.51E-04	3.92E-04	9.80E-05	1.37E-04	6.00E-04	1.42E-04	6.20E-04	6.20E-03	9.60E-03	8.00E-04	Yes
Carbon disulfide									4.06E-05	1.78E-04	4.19E-05	1.83E-04	8.24E-05	3.61E-04	2.00E+00	No
Carbon tetrachloride									3.77E-06	1.65E-05	3.89E-06	1.70E-05	7.66E-06	3.36E-05	4.40E-04	No
Carbonyl sulfide									7.21E-05	3.16E-04	7.45E-05	3.26E-04	1.47E-04	6.42E-04	2.70E-02	No
Chlorobenzene									1.72E-04	7.55E-04	1.78E-04	7.79E-04	3.50E-04	1.53E-03	2.33E+01	No
Chloroethane (ethyl chloride)									4.94E-04	2.16E-03	5.10E-04	2.23E-03	1.00E-03	4.40E-03	1.76E+02	No
Chloroform									2.19E-05	9.61E-05	2.26E-05	9.92E-05	4.46E-05	1.95E-04	2.80E-04	No
Chloromethane (methylchloride)									3.74E-04	1.64E-03	3.86E-04	1.69E-03	7.60E-04	3.33E-03	NA	NA
Dichlorobenzene									1.89E-04	8.28E-04	1.95E-04	8.55E-04	3.84E-04	1.68E-03	2.00E+01	No
Dichloromethane (methylene chloride)									7.44E-03	3.26E-02	7.68E-03	3.36E-02	1.51E-02	6.62E-02	1.60E-03	Yes
Ethylbenzene									4.50E-04	1.97E-03	4.64E-04	2.03E-03	9.14E-04	4.00E-03	2.90E+01	No
Ethylene dibromide									1.15E-06	5.04E-06	1.19E-06	5.20E-06	2.34E-06	1.02E-05	3.00E-05	No
Formaldehyde	4.20E-04	6.93E-04	1.01E-03	1.67E-03	7.65E-04	1.91E-04	4.96E-04	1.24E-04					2.69E-03	2.68E-03	5.10E-04	Yes
Hexane									5.20E-04	2.28E-03	5.37E-04	2.35E-03	1.06E-03	4.63E-03	1.20E+01	No
Mercury (total)									1.79E-05	7.86E-05	1.85E-05	8.11E-05	3.65E-05	1.60E-04	7.00E-03	No
Methyl ethyl ketone (MEK)									4.70E-04	2.06E-03	4.85E-04	2.12E-03	9.55E-04	4.18E-03	3.93E+01	No
Methyl isobutyl ketone (MIBK)									1.72E-04	7.54E-04	1.78E-04	7.78E-04	3.50E-04	1.53E-03	1.37E+01	No
Naphthalene	6.92E-04	1.14E-03	7.28E-05	1.20E-04	5.50E-05	1.37E-05	3.56E-05	8.90E-06					8.55E-04	1.28E-03	3.33E+00	No
Perchloroethylene (tetrachloroethylene)									3.79E-03	1.66E-02	3.91E-03	1.71E-02	7.70E-03	3.37E-02	1.30E-02	Yes
Toluene	1.49E-03	2.47E-03	3.51E-04	5.79E-04	2.65E-04	6.63E-05	1.72E-04	4.29E-05	3.33E-03	1.46E-02	3.43E-03	1.50E-02	9.04E-03	3.28E-02	2.50E+01	No
Trichloroethylene									2.27E-03	9.94E-03	2.34E-03	1.03E-02	4.61E-03	2.02E-02	1.79E+01	No
Vinyl chloride									2.81E-03	1.23E-02	2.90E-03	1.27E-02	5.71E-03	2.50E-02	9.40E-04	Yes
Xylenes									1.18E-03	5.17E-03	1.22E-03	5.34E-03	2.40E-03	1.05E-02	2.90E+01	No
Hydrochloric Acid									4.65E-01	2.04E+00	4.80E-01	2.10E+00	9.45E-01	4.14E+00	NA	NA
o-Xylenes	1.03E-03	1.69E-03	2.45E-04	4.04E-04	1.85E-04	4.62E-05	1.20E-04	2.99E-05					1.58E-03	2.17E-03	2.90E+01	No
Propylene													4.97E-03	4.34E-03	NA	NA
Acetaldehyde	1.34E-04	2.21E-04	6.59E-04	1.09E-03	4.97E-04	1.24E-04	3.22E-04	8.05E-05					1.61E-03	1.51E-03	3.00E-03	No
Acrolein	4.19E-05	6.92E-05	7.94E-05	1.31E-04	5.99E-05	1.50E-05	3.89E-05	9.71E-06					2.20E-04	2.25E-04	1.70E-02	No
1,3-Butadiene			3.36E-05	5.54E-05	2.53E-05	6.33E-06	1.64E-05	4.11E-06					7.53E-05	6.58E-05	2.40E-05	Yes
Total HAPS																

Potential Landfill Emissions Calculations

Table D4 - Flares

Assume potential LFG flow of 4699 scfm

$Q_{CH_4 Max} = 3.497E+07 \text{ m}^3/\text{yr}$ Design maximum; w/ 50% methane content

Uncontrolled Emissions of PM-10

Manufacturer Specifications

$CM_{PM10} = 0.042 \text{ lb/MMBTU}$

$Q_{r_{max}} = 65,520,000$ Maximum flare heat release (BTU/hr); based on design specifications

LHV = 546 Landfill gas lower heating value (BTU/SCF), based on design specifications

$Q_{CH_4} = 3.497E+07 \text{ m}^3/\text{yr}$

$1.23E+09 \text{ ft}^3/\text{yr}$

$Q_{r_{Total}} = 76,969,620$ Lower flare heat release (BTU/hr)

$CM_{PM10} = 3.23 \text{ lb/hr}$ **14.16 tons/yr** Combined

AP-42 Emission Factor (Section 2.4, 11/98, Table 2.4-5)

$CM_{PM10} = 17 \text{ lb/MMdscf}$

$CM_{PM10} = 2.40 \text{ lb/hr}$ **10.50 tons/yr** Combined

Note: Conservative Engineering Assumption PM10 is assumed to equal PM10 and PM2.5

Potential Landfill Emissions Calculations

Table D5 - Flares

Given:

$$Q_{CH_4 \text{ Max}} = 3.497E+07 \text{ m}^3/\text{yr} \quad \text{Design maximum; w/ 50\% methane content}$$

Estimate of NMOC & Other Constituent Concentrations

$$Q_p = F * Q_{CH_4} * (C_p / 1E+06) \quad \text{Eqn 3}$$

$Q_p =$ Emission rate of pollutant P (m^3/yr)
 $Q_{CH_4 \text{ Max}} =$ 3.497E+07 Methane generation rate at time t (m^3/yr)
 $C_p =$ 172.5 Concentration of pollutant P in landfill gas sample, corrected (ppmv)
 $F =$ 2.0 Multiplication factor; 1.82 for landfill gas at 55% CH_4 ; 2.0 for landfill gas at 50% CH_4

$$Q_p = 12,066 \text{ m}^3/\text{yr} \quad \text{NMOC} = 0.81 \text{ cfm NMOC} \quad \text{Combined Flares}$$

Uncontrolled Mass Emissions Rate

$$UM_p = Q_p * (MW_p * 1 \text{ atm}) / (8.205E-05 \text{ m}^3\text{-atm/gmol-K} * 1000 \text{ g/kg} * (273 + T) \text{ K}) \quad \text{Eqn 4}$$

$UM_p =$ Uncontrolled mass emission rate of pollutant P (kg/yr)
 $Q_p =$ 12,066 Emission rate of pollutant P (m^3/yr)
 $MW_p =$ 86.18 Molecular weight of pollutant P; NMOC = hexane, MW =86.18 (g/gmol)
 $T =$ 20 Temperature of landfill gas (C); default 25 C.

$$UM_p = 43,253 \text{ kg/yr} \quad \text{NMOC} = 10.86 \text{ lb/hr NMOC} \quad \text{Combined Flares}$$

$$47.7 \text{ Tons/yr} \quad \text{NMOC}$$

Controlled Emissions of Methane, NMOC and Speciated Emissions

$$CM_p = UM_p * (1 - \eta_{col}) + UM_p * \eta_{col} * (1 - \eta_{ctl}) \quad \text{Eqn 5}$$

$CM_p =$ Controlled mass emissions of pollutant P (kg/yr)
 $UM_p =$ Uncontrolled mass emissions of pollutant P (kg/yr); use Eqn 4
 $\eta_{col} =$ 85.0% Gas collection system control efficiency; default 75% = 0.75
 $\eta_{ctl} =$ Emission control device control efficiency

$$CM_p = \text{Calculated values given in NMOC \& TAPS emissions table}$$

Controlled Emissions of Carbon Dioxide and Sulfur Dioxide

Carbon Dioxide Emissions

$$CM_{CO_2} = UM_{CO_2} + UM_{CH_4} * \eta_{col} * 2.75 \quad \text{Eqn 6}$$

$CM_{CO_2} =$ Controlled mass emissions of carbon dioxide (kg/yr)
 $UM_{CO_2} =$ 6.400E+07 Uncontrolled mass emissions of carbon dioxide (kg/yr); Design Maximum value
 $UM_{CH_4 \text{ Max}} =$ 2.333E+07 Uncontrolled mass emissions of methane (kg/yr); Design maximum value
 $\eta_{col} =$ 85.0% Gas collection system control efficiency

$$CM_{CO_2} = 118,527,486 \text{ kg/yr} \quad CO_2 = 29,767.18 \text{ lb/hr NMOC} \quad \text{Combined Flares}$$

$$130,617 \text{ Tons/yr} \quad CO_2$$

If site-specific total reduced sulfur compound data is available --

$$CM_{SO_2} = UM_S * \eta_{col} * 2.0 \quad \text{Eqn 7}$$

$CM_{SO_2} =$ Controlled mass emissions of sulfur dioxide (kg/yr)
 $UM_S =$ Uncontrolled mass emissions of reduced sulfur compounds (kg/yr); use Eqn 3 & 4
 $\eta_{col} =$ 85% Gas collection system control efficiency

Sulfur Dioxide Emissions

If site-specific total reduced sulfur compound data is not available --

$$C_S = \text{Sigma} (C_p * S_p) \quad \text{Eqn 8}$$

$C_S =$ 46.9 Concentration of total reduced sulfur compounds (ppmv as S); default value 46.9 ppmv.
 $C_p =$ NA Concentration of each reduced sulfur compound (ppmv)
 $S_p =$ NA No. of moles of S produced from combustion of each reduced sulfur compound
 $F =$ 2.0 Multiplication factor; 1.82 for landfill gas at 55% CH_4 ; 2.0 for landfill gas at 50% CH_4

$Q_{CH_4 \text{ Max}} = 3.497E+07$ Methane generation rate at time t (m^3/yr)
 $MW_S = 32.06$ Molecular weight of sulfur (g/mol)

$Q_S = F * Q_{CH_4} * (C_S / 1E+06)$ Eqn 3

$Q_S = 3,280$ ppmv S, sulfur

$UM_S = Q_S * (MW_S * 1 \text{ atm}) / (8.205E-05 \text{ m}^3\text{-atm/gmol-K} * 1000 \text{ g/kg} * (273 + T) \text{ K})$ Eqn 4

$UM_S = 4,375$ Uncontrolled mass emission rate of sulfur (kg/yr)

$CM_{SO_2} = UM_S * n_{col} * 2.0$ Eqn 7

$CM_{SO_2} =$ Controlled mass emissions of sulfur dioxide (kg/yr)
 $UM_S = 4,375$ Uncontrolled mass emissions of reduced sulfur compounds (kg/yr); use Eqn 3 & 4
 $n_{col} = 85\%$ Gas collection system control efficiency; default 75% = 0.75

$CM_{SO_2} = 7,437 \text{ kg/yr}$ SO_2 Combined Flares
 8.2 Tons/yr $SO_2 = 1.87 \text{ lb/hr } SO_2$ Existing PTE

Controlled Emissions of Hydrochloric Acid

$C_{Cl} = \text{Sigma} (C_P * Cl_P)$ Eqn 9

$C_{Cl} = 42.0$ Concentration of total chloride (ppmv as Cl⁻); default value 42.0 ppmv.
 $C_P = NA$ Concentration of each chlorinated compound (ppmv)
 $Cl_P = NA$ No. of moles of Cl⁻ produced from combustion of each reduced sulfur compound
 $F = 2.0$ Multiplication factor; 1.82 for landfill gas at 55% CH₄; 2.0 for landfill gas at 50% CH₄
 $Q_{CH_4 \text{ Max}} = 3.497E+07$ Methane generation rate at time t (m^3/yr)
 $MW_{Cl} = 35.453$ Molecular weight of chloride, Cl⁻ (g/mol)

$Q_{Cl} = F * Q_{CH_4} * (C_{Cl} / 1E+06)$ Eqn 3

$Q_{Cl} = 2,938$ ppmv Chloride, Cl⁻

$UM_S = Q_S * (MW_S * 1 \text{ atm}) / (8.205E-05 \text{ m}^3\text{-atm/gmol-K} * 1000 \text{ g/kg} * (273 + T) \text{ K})$ Eqn 4

$UM_{Cl} = 4,332$ Uncontrolled mass emission rate of chlorine, Cl⁻ (kg/yr)

$CM_{HCl} = UM_{Cl} * n_{col} * 1.03 * n_{ent}$ Eqn 10

$CM_{HCl} =$ Controlled mass emissions of HCl (kg/yr)
 $UM_{Cl} = 4,332$ Uncontrolled mass emissions of chlorinated compounds (kg/yr); use Eqn 3 & 4
 $n_{col} = 85\%$ Gas collection system control efficiency; default 75% = 0.75
 $n_{ent} = 99\%$ Emission control device control efficiency (for flare, halogenated species, high-end of range)

$CM_{HCl} = 3,755 \text{ kg/yr}$ HCl Combined Flares
 4.1 Tons/yr $HCl = 0.94 \text{ lb/hr HCL}$

Uncontrolled Emissions of Nitrogen Oxides (NOx) and Carbon Monoxide

Manufacturer Specifications

$CM_{NOx} = 0.06 \text{ lb/MMBTU @1,600°F}$
 $0.08 \text{ lb/MMBTU @1,800°F}$

$CM_{CO} = 0.02 \text{ lb/MMBTU @1,600°F}$
 $0.015 \text{ lb/MMBTU @1,800°F}$

$Q_{r \text{ max}} = 65,520,000$ Maximum flare heat release (BTU/hr); based on design specifications

$LHV = 546$ Landfill gas lower heating value (BTU/SCF), based on design specifications

$Q_{CH_4 \text{ Max}} = 3.50E+07 \text{ m}^3/yr$
 $1.23E+09 \text{ ft}^3/yr$ $2.35E+03$

$Q_{r \text{ Total}} = 76,969,620$ Total flare heat release (BTU/hr)

$CM_{NOx} = 4.62 \text{ lb/hr @1,600°F}$ 20.23 tons/yr Combined
 $6.16 \text{ lb/hr @1,800°F}$ 26.97 tons/yr Combined

$CM_{CO} = 1.54 \text{ lb/hr @1,600°F}$ 6.74 tons/yr Combined
 $1.15 \text{ lb/hr @1,800°F}$ 5.06 tons/yr Combined

Landfill Emissions Calculations - NMOC & TAP Emissions
Table D6 - Flares

Note: Values already corrected for air infiltration
Uncontrolled Pollutant Concentrations (AP-42 Table 2.4-1, 11/98)

Year: 2011
 $Q_{CH4 Max} = 3.497E+07 \text{ m}^3/\text{yr}$ Design maximum for all pollutants except H2S and SO2 (Existing Permit Conditions)
 $Q_{CH4 Max} = 2.493E+07 \text{ m}^3/\text{yr}$ Design maximum for H2S and SO2
 Collection system efficiency: 85.0%
 Landfill Temp: 20 C

Pollutant	CAS No.	MW	Concentration in Landfill Gas		Landfill Uncontrolled Emission Rates - No Flare				Flare Emissions (Emissions After Collection and Control)			IDAPA 58.01.01.585/586 Standards			Flare - Controlled	Flare Control Efficiency
			(g/gmol)	(ppmv)	Volume (m ³ /yr)	Mass - Annual		Mass - Hourly (lb/hr)	Flare Emissions			EL (lb/hr)	AAC (mg/m ³)	AACC (ug/m ³)		
						(kg/yr)	(lb/yr)		(kg/yr)	(lb/yr)	(lb/hr)					
1,1,1-Trichloroethane	71-55-6	133.41	0.48	3.36E+01	1.86E+02	4.11E+02	1.36E-01	9.22E+00	2.03E+01	2.32E-03	1.10E-05	95.5	1.70E-02	Below	98.0%	
1,1,2,2-Tetrachloroethane	79-34-6	167.85	1.11	7.76E+01	5.42E+02	1.20E+03	9.77E-03	6.60E-01	1.45E+00	1.66E-04	4.20E-04	NA	NA	Exceeds	98.0%	
1,1,2-Trichloroethane	79-00-6	133.41	0.10	6.99E+00	8.86E+01	8.56E+01	9.77E-03	6.60E-01	1.45E+00	2.90E-03	2.50E-04	NA	NA	Exceeds	98.0%	
1,1-Dichloroethane (ethylidene dichloride)	75-34-3	98.97	2.35	1.64E+02	6.77E+02	1.49E+03	1.70E-01	1.15E+01	2.54E+01	2.41E-04	1.30E-04	NA	NA	Exceeds	98.0%	
1,1-Dichloroethane (vinylidene chloride)	75-35-4	96.94	0.2	1.40E+01	5.64E+01	1.24E+02	1.42E-02	9.59E-01	2.11E+00	2.41E-04	1.30E-04	NA	NA	Exceeds	98.0%	
1,2-Dichloroethane (ethylene dichloride)	107-06-2	98.96	0.41	2.87E+01	1.18E+02	2.60E+02	2.97E-02	2.01E+00	4.42E+00	5.05E-04	2.50E-04	NA	NA	Exceeds	98.0%	
1,2-Dichloropropane (propylene dichloride)	78-87-5	112.99	0.18	1.26E+01	5.92E+01	1.30E+02	1.49E-02	1.01E+00	2.22E+00	2.53E-04	23.133	17.35	3.80E-02	Below	98.0%	
2-Propanol (isopropyl alcohol)	67-63-0	60.11	50.1	3.50E+03	8.76E+03	1.93E+04	2.21E+00	2.23E+01	4.93E+01	5.62E-03	6.53E+01	49	89	Below	99.7%	
Acetone	67-64-1	58.08	7.01	4.90E+02	1.18E+03	2.81E+03	2.89E-01	3.02E+00	6.66E+00	7.60E-04	1.19	89	Below	99.7%		
Acrylonitrile	107-13-1	53.06	6.33	4.43E+02	9.77E+02	2.15E+03	2.46E-01	2.49E+00	5.49E+00	6.27E-04	9.80E-05	NA	1.50E-02	Exceeds	99.7%	
Bromodichloromethane	75-27-4	163.83	3.13	2.19E+02	1.49E+03	3.29E+03	3.75E-01	2.64E+01	5.99E+01	6.38E-03	NA	NA	NA	Below	98.0%	
Butane	106-97-8	58.12	5.03	3.52E+02	8.61E+02	1.88E+03	2.14E-01	2.17E+00	4.78E+00	5.46E-04	NA	NA	NA	Below	99.7%	
Carbon disulfide	75-15-0	76.13	0.58	4.08E+01	1.28E+02	2.83E+02	3.23E-02	3.28E-01	7.22E-01	8.24E-05	2	1.5	NA	Below	99.7%	
Carbon tetrachloride	56-23-5	153.84	0.004	2.80E-01	1.79E+00	3.95E+00	4.51E-04	3.04E-02	6.71E-02	7.66E-06	4.40E-04	NA	6.70E-02	Below	98.0%	
Carbonyl sulfide	463-58-1	60.07	0.49	3.43E+01	8.56E+01	1.89E+02	2.16E-02	5.82E-01	1.28E+00	1.47E-04	0.027	NA	NA	Below	98.2%	
Chlorobenzene	108-90-7	112.56	0.25	1.75E+01	8.19E+01	1.80E+02	2.06E-02	1.39E+00	3.07E+00	3.50E-04	23.3	17.5	NA	Below	98.0%	
Chlorodifluoromethane	78-48-6	85.47	1.3	8.09E+01	3.27E+02	7.21E+02	8.23E-02	5.56E+00	1.23E+01	1.40E-03	NA	NA	NA	Below	98.0%	
Chloroethane (ethyl chloride)	75-00-3	64.52	1.25	8.74E+01	2.35E+02	5.17E+02	5.91E-02	3.99E+00	8.79E+00	1.00E-03	176	132	NA	Below	98.0%	
Chloroform	87-66-3	119.39	0.03	2.10E+00	1.04E+01	2.30E+01	2.82E-03	1.77E-01	3.91E-01	4.46E-05	2.80E-04	NA	4.30E-02	Below	98.0%	
Chloromethane (methylchloride)	74-87-3	50.49	1.21	8.46E+01	1.78E+02	3.92E+02	4.47E-02	3.02E+00	6.66E+00	7.80E-04	NA	NA	NA	Below	98.0%	
Dichlorobenzene	95-50-1	147	0.21	1.47E+01	8.69E+01	1.98E+02	2.26E-02	1.63E+00	3.37E+00	3.93E-04	NA	NA	NA	Below	98.0%	
Dichlorodifluoromethane	75-71-8	120.91	15.7	1.10E+03	5.52E+03	1.22E+04	1.39E+00	9.39E+01	2.07E+02	2.36E-02	NA	NA	NA	Below	98.0%	
Dichlorofluoromethane	75-43-4	102.92	2.62	1.83E+02	7.86E+02	1.73E+03	1.97E-01	1.33E+01	2.94E+01	3.36E-03	2.87	2	NA	Below	98.0%	
Dichloromethane (methylene chloride)	75-09-2	84.94	14.3	1.00E+03	3.53E+03	7.79E+03	8.89E-01	6.01E+01	1.32E+02	1.51E-02	1.60E-03	NA	2.40E-01	Exceeds	98.0%	
Dimethyl sulfide (methyl sulfide)	75-18-3	62.13	7.82	5.47E+02	1.41E+03	3.12E+03	3.56E-01	9.61E+00	2.12E+01	2.42E-03	NA	NA	NA	Below	99.2%	
Ethane	74-84-0	30.07	889	6.22E+04	7.78E+04	1.71E+05	1.96E+01	1.99E+02	4.37E+02	4.99E-02	NA	NA	NA	Below	99.7%	
Ethanol	64-17-5	46.08	27.2	1.90E+03	3.65E+03	8.04E+03	9.18E-01	9.30E+00	2.05E+01	2.34E-03	125	94	NA	Below	99.7%	
Ethyl mercaptan (ethanethiol)	75-08-1	62.13	2.28	1.59E+02	4.12E+02	9.08E+02	1.04E-01	1.05E+00	2.32E+00	2.64E-04	0.067	0.05	NA	Below	99.7%	
Ethylbenzene	100-41-4	106.16	4.61	3.22E+02	1.42E+03	3.14E+03	3.58E-01	3.63E+00	8.00E+00	9.14E-04	29	21.75	NA	Below	99.7%	
Ethylene dibromide	106-93-4	187.88	0.001	6.99E-02	5.47E-01	1.21E+00	1.38E-04	9.29E-03	2.05E-02	2.34E-06	3.00E-05	NA	4.50E-03	Below	98.0%	
Fluorodichloromethane	75-69-4	137.38	0.76	5.32E+01	3.04E+02	6.70E+02	7.65E-02	5.16E+00	1.14E+01	1.30E-03	NA	NA	NA	Below	98.0%	
Hexane	110-54-3	86.18	6.57	4.80E+02	1.65E+03	3.63E+03	4.15E-01	4.20E+00	9.26E+00	1.06E-03	12	9	NA	Below	99.7%	
Hydrogen sulfide	7783-06-4	34.08	600	2.99E+04	4.24E+04	9.35E+04	1.07E+01	2.88E+02	7.48E+02	8.54E-02	0.933	0.7	NA	Below	99.2%	
Mercury (total)	7439-97-8	200.61	0.000292	2.04E-02	1.70E-01	3.76E-01	4.29E-05	1.45E-01	3.19E-01	3.65E-05	0.007	0.005	NA	Below	0.0%	
Methyl ethyl ketone (MEK)	78-93-3	72.11	7.05	4.98E+02	1.49E+03	3.28E+03	3.74E-01	3.79E+00	8.36E+00	9.55E-04	39.3	29.5	NA	Below	99.7%	
Methyl isobutyl ketone (MIBK)	108-10-1	100.16	1.87	1.31E+02	5.45E+02	1.20E+03	1.37E-01	1.33E+00	3.06E+00	3.50E-04	13.7	10.25	NA	Below	99.7%	
Methyl mercaptan	74-93-1	48.11	2.49	1.74E+02	3.49E+02	7.68E+02	8.77E-02	8.89E-01	1.96E+00	2.24E-04	0.033	0.025	NA	Below	99.7%	
Pentane	109-66-0	72.15	3.29	2.30E+02	6.91E+02	1.52E+03	1.74E-01	1.76E+00	3.88E+00	4.43E-04	118	88.5	NA	Below	99.7%	
Perchloroethylene (tetrachloroethylene)	127-18-4	165.83	3.73	2.61E+02	1.80E+03	3.97E+03	4.53E-01	3.06E+01	6.74E+01	7.70E-03	1.30E-02	NA	2.10E+00	Below	99.7%	
Propane	74-98-6	44.09	11.1	7.76E+02	1.42E+03	3.14E+03	3.58E-01	3.63E+00	8.00E+00	9.14E-04	NA	NA	NA	Below	99.7%	
trans-1,2-Dichloroethane	540-59-0	96.94	2.84	1.99E+02	8.01E+02	1.77E+03	2.02E-01	1.38E+01	3.00E+01	3.43E-03	52.7	39.5	NA	Below	98.0%	
Trichloroethylene	79-01-6	131.4	2.82	1.97E+02	1.08E+03	2.38E+03	2.71E-01	1.83E+01	4.04E+01	4.61E-03	17.93	13.45	NA	Below	98.0%	
Vinyl chloride	75-01-4	62.5	7.34	5.13E+02	1.33E+03	2.94E+03	3.36E-01	2.27E+01	5.00E+01	5.71E-03	8.40E-04	NA	1.40E-01	Exceeds	98.0%	
Xylenes	1330-20-7	106.16	12.1	8.46E+02	3.74E+03	8.24E+03	9.41E-01	9.53E+00	2.10E+01	2.40E-03	29	21.75	NA	Below	99.7%	
Carbon monoxide	630-08-0	28.01	141	8.86E+03	1.15E+04	2.53E+04	2.89E+00	4.20E+04	9.25E+04	1.06E+01	NA	NA	NA	Below	12.00%	

Codisposal Pollutant Concentrations (AP-42 Table 2.4-2, 11/98)

Pollutant	CAS No.	MW (g/gmol)	Concentration (ppmv)	Uncontrolled		Uncontrolled		Flare		Flare		IDAPA 58.01.01.585/586 Standards			Total - Controlled	Exceeds EL?	Flare
				Rate (m ³ /yr)	Rate (kg/yr)	Rate (lb/yr)	Rate - Hourly (lb/hr)	Rate - Annual (kg/yr)	Rate - Annual (lb/yr)	Rate - Hourly (lb/hr)	Rate - Hourly (lb/hr)	EL (lb/hr)	AAC (mg/m ³)	AACC (ug/m ³)			
Benzene	71-43-2	78.11	11.1	7.78E+02	2.52E+03	5.56E+03	6.35E-01	6.43E+00	1.42E+01	1.62E-03	8.00E-04	NA	1.20E-01	Below	99.7%	99.7%	
Co-disposal No or unknown co-disposal	71-43-2	78.11	1.91	1.34E+02	4.34E+02	9.57E+02	1.09E-01	1.11E+00	2.44E+00	2.79E-04	8.00E-04	NA	1.20E-01	Below	99.7%	99.7%	
NMOC (as hexane)		86.18	2.420	1.69E+05	6.07E+05	1.34E+06	1.53E+02	4.13E+03	9.10E+03	1.04E+00	NA	NA	NA	Below	99.2%	99.2%	
Co-disposal No or unknown co-disposal		86.18	595	4.16E+04	1.49E+05	3.29E+05	3.76E+01	1.01E+03	2.24E+03	2.55E-01	NA	NA	NA	Below	99.2%	99.2%	
Regulatory default		86.18	4,000	2.80E+05	1.00E+06	2.21E+06	2.52E+02	6.82E+03	1.60E+04	1.72E+00	NA	NA	NA	Below	99.2%	99.2%	
Site-Specific Value		86.18	172.5	1.21E+04	4.33E+04	9.54E+04	1.09E+01	3.68E+04	8.11E+04	9.25E+00	NA	NA	NA	Below	99.7%	99.7%	
Toluene	108-88-3	92.13	165	1.15E+04	4.42E+04	9.75E+04	1.11E+01	1.13E+02	2.49E+02	2.84E-02	25	18.75	NA	Below	99.7%	99.7%	
Co-disposal No or unknown co-disposal	108-88-3	92.13	39.3	2.75E+03	1.05E+04	2.32E+04	2.65E+00	2.69E+01	5.82E+01	6.76E-03	25	18.75	NA	Below	99.7%	99.7%	

Notes:
 1. 1,1,2-Trichloroethane emissions calculated by LANDGEM but not in AP-42 listing (Table 2.4-1, 11/98)
 2. Carbon monoxide emissions from flare: 12,000kg/10⁶ dscm CH₄

Landfill Emissions Calculations

Table D7 - Potential Summary of Emissions - Maximum Flow

Based on Design Maximum rates

	Flare - Controlled		Flare1 - Controlled		Flare 2- C
	(Tons/yr)	(lb/hr)	(Tons/yr)	(lb/hr)	(Tons/yr)
Sulfur Dioxide	88.0	20.09	43.30	9.89	44.71
Nitrogen Oxides	26.97	6.16	13.27	3.03	13.70
Carbon Monoxide	6.74	1.54	3.32	0.76	3.43
PM10	14.16	3.23	6.97	1.59	7.19

HAP/VOOC	Flare - Controlled		Flare1 - Controlled		Flare 2- C	
	(Tons/yr)	(lb/hr)	(Tons/yr)	(lb/hr)	(Tons/yr)	
HAP	1,1,1-Trichloroethane	3.49E-03	7.97E-04	1.72E-03	3.92E-04	1.77E-03
HAP/VOOC	1,1,2,2-Tetrachloroethane	1.02E-02	2.32E-03	5.00E-03	1.14E-03	5.16E-03
HAP/VOOC	1,1,2-Trichloroethane	7.27E-04	1.66E-04	3.58E-04	8.17E-05	3.70E-04
HAP/VOOC	1,1-Dichloroethane (ethylidene dichloride)	1.27E-02	2.90E-03	6.24E-03	1.42E-03	6.44E-03
HAP/VOOC	1,1-Dichloroethene (vinylidene chloride)	1.06E-03	2.41E-04	5.20E-04	1.19E-04	5.37E-04
HAP/VOOC	1,2-Dichloroethane (ethylene dichloride)	2.21E-03	5.05E-04	1.09E-03	2.48E-04	1.12E-03
HAP/VOOC	1,2-Dichloropropane (propylene dichloride)	1.11E-03	2.53E-04	5.46E-04	1.25E-04	5.63E-04
VOOC	2-Propanol (isopropyl alcohol)	2.46E-02	5.62E-03	1.21E-02	2.77E-03	1.25E-02
*	Acetone	3.33E-03	7.60E-04	1.64E-03	3.74E-04	1.69E-03
HAP/VOOC	Acrylonitrile	2.75E-03	6.27E-04	1.35E-03	3.09E-04	1.40E-03
VOOC	Bromodichloromethane	2.80E-02	6.38E-03	1.38E-02	3.14E-03	1.42E-02
VOOC	Butane	2.39E-03	5.46E-04	1.18E-03	2.69E-04	1.21E-03
HAP/VOOC	Carbon disulfide	3.61E-04	8.24E-05	1.78E-04	4.06E-05	1.83E-04
HAP/VOOC	Carbon tetrachloride	3.36E-05	7.66E-06	1.65E-05	3.77E-06	1.70E-05
HAP/VOOC	Carbonyl sulfide	6.42E-04	1.47E-04	3.16E-04	7.21E-05	3.26E-04
HAP/VOOC	Chlorobenzene	1.53E-03	3.50E-04	7.55E-04	1.72E-04	7.79E-04
VOOC	Chlorodifluoromethane	6.13E-03	1.40E-03	3.02E-03	6.88E-04	3.11E-03
HAP/VOOC	Chloroethane (ethyl chloride)	4.40E-03	1.00E-03	2.16E-03	4.94E-04	2.23E-03
HAP/VOOC	Chloroform	1.95E-04	4.46E-05	9.61E-05	2.19E-05	9.92E-05
HAP/VOOC	Chloromethane (methylchloride)	3.33E-03	7.60E-04	1.64E-03	3.74E-04	1.69E-03
HAP/VOOC	Dichlorobenzene	1.68E-03	3.84E-04	8.28E-04	1.89E-04	8.55E-04
VOOC	Dichlorodifluoromethane	1.03E-01	2.36E-02	5.09E-02	1.16E-02	5.26E-02
VOOC	Dichlorofluoromethane	1.47E-02	3.36E-03	7.23E-03	1.65E-03	7.47E-03
HAP	Dichloromethane (methylene chloride)	6.62E-02	1.51E-02	3.26E-02	7.44E-03	3.36E-02
VOOC	Dimethyl sulfide (methyl sulfide)	1.06E-02	2.42E-03	5.21E-03	1.19E-03	5.38E-03
VOOC	Ethane	2.19E-01	4.99E-02	1.08E-01	2.46E-02	1.11E-01
VOOC	Ethanol	1.03E-02	2.34E-03	5.04E-03	1.15E-03	5.21E-03
VOOC	Ethyl mercaptan (ethanethiol)	1.16E-03	2.64E-04	5.70E-04	1.30E-04	5.89E-04
HAP/VOOC	Ethylbenzene	4.00E-03	9.14E-04	1.97E-03	4.50E-04	2.03E-03
HAP/VOOC	Ethylene dibromide	1.02E-05	2.34E-06	5.04E-06	1.15E-06	5.20E-06
VOOC	Fluorotrichloromethane	5.69E-03	1.30E-03	2.80E-03	6.39E-04	2.89E-03
HAP/VOOC	Hexane	4.63E-03	1.06E-03	2.28E-03	5.20E-04	2.35E-03
*	Hydrogen sulfide	3.74E-01	8.54E-02	1.84E-01	4.20E-02	1.90E-01
HAP	Mercury (total)	1.60E-04	3.65E-05	7.86E-05	1.79E-05	8.11E-05
HAP/VOOC	Methyl ethyl ketone (MEK)	4.18E-03	9.55E-04	2.06E-03	4.70E-04	2.12E-03
HAP/VOOC	Methyl isobutyl ketone (MIBK)	1.53E-03	3.50E-04	7.54E-04	1.72E-04	7.78E-04
VOOC	Methyl mercaptan	9.80E-04	2.24E-04	4.82E-04	1.10E-04	4.98E-04
VOOC	Pentane	1.94E-03	4.43E-04	9.55E-04	2.18E-04	9.86E-04
HAP/VOOC	Perchloroethylene (tetrachloroethylene)	3.37E-02	7.70E-03	1.66E-02	3.79E-03	1.71E-02
VOOC	Propane	4.00E-03	9.14E-04	1.97E-03	4.50E-04	2.03E-03
*	trans-1,2-Dichloroethene	1.50E-02	3.43E-03	7.38E-03	1.69E-03	7.63E-03
HAP/VOOC	Trichloroethylene	2.02E-02	4.61E-03	9.94E-03	2.27E-03	1.03E-02
HAP/VOOC	Vinyl chloride	2.50E-02	5.71E-03	1.23E-02	2.81E-03	1.27E-02
HAP/VOOC	Xylenes	1.05E-02	2.40E-03	5.17E-03	1.18E-03	5.34E-03
HAP	Hydrochloric Acid	4.14E+00	9.45E-01	2.04E+00	4.65E-01	2.10E+00
HAP/VOOC	Benzene					
	No or unknown co-disposal	1.22E-03	2.79E-04	6.00E-04	1.37E-04	6.20E-04
VOOC	NMOC (as hexane)					
	Site-Specific Value	4.05E+01	9.25E+00	1.99E+01	4.55E+00	2.06E+01
HAP/VOOC	Toluene					
	No or unknown co-disposal	2.96E-02	6.76E-03	1.46E-02	3.33E-03	1.50E-02
	Total TAPS	4.83	1.10	2.38E+00	5.42E-01	2.45E+00
	Total HAPS	4.32	0.99	2.12E+00	4.85E-01	2.19E+00
	Total VOCS	41.14	9.39	2.02E+01	4.62E+00	2.09E+01

	Flare 1		Flare 2	
	Tons/yr	lb/hr	Tons/yr	lb/hr
Total TAPS	2.38	0.54	2.45	0.56
Total HAPS	2.12	0.49	2.19	0.50
Total VOCS	20.24	4.621	20.90	4.771

Notes:

* Not classified as either HAP or VOC

1. 1,1,2-Trichloroethane emissions calculated by LANDGEM but not in AP-42 listing (Table 2.4-1, 11/98)

Table D8

H2S Conversion from lb/hr H2S to lb/hr SO2

Assumptions:

- 34 MW of H2S
- 32 MW of Sulfur
- 64 MW of SO2
- 1.07E+01 lb/hr H2S

Assume 100% H2S conversion for SO2

- 10.05 lb/hr S
- 0.31 lb-mol S
- 20.09 lb/hr SO2

Current SO2 Limits:

- 1.87 lb/hr SO2 Combined Flares
- 0.92 lb/hr SO2 Flare 1
- 0.95 lb/hr SO2 Flare 2

SO2 Net Increase:

- 18.22 lb/hr SO2 Combined Flares
- 8.965 lb/hr SO2 Flare 1
- 9.257 lb/hr SO2 Flare 2

Based on IDEQ calculated results

SO2 Total Flares (facility wide modeling)

- 20.37 lb/hr SO2 Combined Flares
- 10.022 lb/hr SO2 Flare 1
- 10.348 lb/hr SO2 Flare 2

$$CM_{SO_2} = UM_S * n_{col} * 2.0$$

Eqn 7

$CM_{SO_2} =$ Controlled mass emissions of sulfur dioxide (lb/hr)

$UM_S =$ 10.05 lb/hr S

$n_{col} =$ 2 Gas collection system control efficiency

$CM_{SO_2} =$ 20.09 lb/hr SO₂ Combined Flares
88.0 Tons/yr SO₂

$CM_{SO_2} =$ 20.37 lb/hr SO₂ IDEQ calculated results (November 2011)
89.2 Tons/yr SO₂

- 89.22 Ton/yr SO2 Combined Flares
- 43.89 Ton/yr SO2 Flare 1
- 45.33 Ton/yr SO2 Flare 2

Potential Emission Calculations

Table D9 - ACLF - Wood Chipper Diesel Engine Emissions (Gen 1)

Emission Point No.	SC-E-1	
Model No.	CAT C18	
Engine Power Rating (bhp)	650	
Fuel Type	Distillate #2	
- maximum sulfur content	0.0015%	Ultra low sulfur fuel
Maximum Firing Rate (gals/hr)	38.0	
Maximum Heat Input Rating (Btu/hr)	5,320,000	
(hp)	2,090	Large Engine
Maximum Hours of Operation	3,300	
Maximum Firing Rate (gals/yr)	125,400	
Heat Capacity of Fuel (Btu/gal)	140,000	

Pollutant	CAS No.	Emission Factor (lb/MMBtu)	Uncontrolled Potential to Emit		
			Emission Rate (lb/hr)	Emission Rate (lb/yr)	Emission Rate (ton/yr)
Total Particulate Matter (PM) ¹		0.0697	0.37	1,224	0.61
Total Particulate Matter (PM _{2.5}) ²		0.0556	0.30	976	0.49
Particulate Matter (PM ₁₀) ³		0.0573	0.30	1,006	0.50
Sulfur Oxides (SO ₂) ⁴		0.00152	0.0081	26.60	0.013
Nitrogen Oxides (NOx) ⁵			5.36	17,688	8.84
Carbon Monoxide (CO) ⁵			0.95	3,135	1.57
HC as VOC ⁵			0.12	396	0.20

	CAS Number	Emission Factor (lb/MMBtu)	Emission Rate (lb/hr)	Emission Rate (lb/yr)	Emission Rate (ton/yr)	IDAPA 58.01.01.585/5		HAP
						86 - EL (lb/hr)	PTE Emission Rate vs. EL	
Benzene	71-43-2	7.76E-04	4.13E-03	1.36E+01	6.81E-03	8.00E-04	Exceeds	HAP
Formaldehyde	50-00-0	7.89E-05	4.20E-04	1.39E+00	6.93E-04	5.10E-04	Below	HAP
Naphthalene	91-20-3	1.30E-04	6.92E-04	2.28E+00	1.14E-03	3.33E+00	Below	HAP
Toluene	108-88-3	2.81E-04	1.49E-03	4.93E+00	2.47E-03	2.50E+01	Below	HAP
o-Xylenes	1330-20-7	1.93E-04	1.03E-03	3.39E+00	1.69E-03	2.90E+01	Below	HAP
Acetaldehyde	75-07-0	2.52E-05	1.34E-04	4.42E-01	2.21E-04	3.00E-03	Below	HAP
Acrolein	107-02-8	7.88E-06	4.19E-05	1.38E-01	6.92E-05	1.70E-02	Below	HAP
Acenaphthene	83-32-9	4.68E-06	2.49E-05	8.22E-02	4.11E-05	#/N/A	#/N/A	
Acenaphthylene	203-96-8	9.23E-06	4.91E-05	1.62E-01	8.10E-05	#/N/A	#/N/A	
Anthracene	120-12-7	1.23E-06	6.54E-06	2.16E-02	1.08E-05	#/N/A	#/N/A	
Benz(a)anthracene	56-55-3	6.22E-07	3.31E-06	1.09E-02	5.46E-06	#/N/A	#/N/A	
Benzo(b)fluoranthene	205-99-2	1.11E-06	5.91E-06	1.95E-02	9.74E-06	#/N/A	#/N/A	
Benzo(k)fluoranthene	205-82-3	2.18E-07	1.16E-06	3.83E-03	1.91E-06	#/N/A	#/N/A	
Benzo(g,h,i)perylene	191-24-2	5.56E-07	2.96E-06	9.76E-03	4.88E-06	#/N/A	#/N/A	
Chrysene	218-01-9	1.53E-06	8.14E-06	2.69E-02	1.34E-05	#/N/A	#/N/A	
Dibenzo(a,h)anthracene	53-70-3	3.46E-07	1.84E-06	6.07E-03	3.04E-06	#/N/A	#/N/A	
Indeno(1,2,3-cd)pyrene	193-39-5	4.14E-07	2.20E-06	7.27E-03	3.63E-06	#/N/A	#/N/A	
Benzo(a)pyrene	50-32-8	2.57E-07	1.37E-06	4.51E-03	2.26E-06	#/N/A	#/N/A	
Total PAH			2.69E-05	8.87E-02	4.44E-05	2.00E-06	Exceeds	
Fluoroanthene	206-44-0	4.03E-06	2.14E-05	7.08E-02	3.54E-05	#/N/A	#/N/A	
Fluorene	86-73-7	1.28E-05	6.81E-05	2.25E-01	1.12E-04	#/N/A	#/N/A	
Phenanthrene	85-01-8	4.08E-05	2.17E-04	7.16E-01	3.58E-04	#/N/A	#/N/A	
Pyrene	129-00-0	3.71E-06	1.97E-05	6.51E-02	3.26E-05	#/N/A	#/N/A	
Propylene	115-07-1	2.79E-03	1.48E-02	4.90E+01	2.45E-02	#/N/A	#/N/A	
Total HAPS			7.94E-03		1.31E-02			

¹ Total PM emission factor (AP-42, Table 3.4-2, 10/96)

² Total PM_{2.5} emission factor based on filterable particulate < 3 μm plus condensable particulate (AP-42, Table 3.4-2, 10/96)

³ PM₁₀ emission factor is the sum of filterable and condensable PM10 emission factors (AP-42, Table 3.4-2, 10/96)

⁴ SO₂ emission factor multiplied by sulfur content of fuel (AP-42, Table 3.4.1, 10/96)

⁵ Manufacturer (Caterpillar) provided worst case emission estimates "Not to exceed data" for NOx, CO, and HC.

Potential Emission Calculations

Table D10 - ACLF - Power Wood Screen Diesel Engine Emissions (Gen 2)

Emission Point No.	SC-E-2	
Model No.	Deutz BF4L913	
Engine Power Rating (bhp)	106	
Fuel Type	Distillate #2	
- maximum sulfur content	0.0015%	Ultra low sulfur fuel
Maximum Firing Rate (gals/hr)	6.1	
Maximum Heat Input Rating (Btu/hr)	858,600	
	(hp)	337
Maximum Hours of Operation	3,300	Small Engine
Maximum Firing Rate (gals/yr)	20,238	
Heat Capacity of Fuel (Btu/gal)	140,000	

Pollutant	CAS No.	Emission Factor (lb/MMBtu)	Uncontrolled Potential to Emit		
			Emission Rate (lb/hr)	Emission Rate (lb/yr)	Emission Rate (ton/yr)
Total Particulate Matter (PM) ¹		0.31	0.27	878	0.44
Total Particulate Matter (PM _{2.5}) ²		0.31	0.27	878	0.44
Particulate Matter (PM ₁₀) ³		0.31	0.27	878	0.44
Nitrogen Oxides (NOx) ⁴		4.41	3.79	12,495	6.25
Sulfur Oxides (SO ₂) ⁵		0.00152	0.0013	4,293	0.002
Carbon Monoxide (CO) ⁴		0.95	0.82	2,692	1.35
TOC as VOC ⁴		0.35	0.30	992	0.50

	CAS Number	Emission Factor (lb/MMBtu)	Uncontrolled Potential to Emit			IDAPA 86 - EL (lb/hr)	PTE Emission Rate vs. EL	HAP
			Emission Rate (lb/hr)	Emission Rate (lb/yr)	Emission Rate (ton/yr)			
Benzene	71-43-2	9.33E-04	8.01E-04	2.64E+00	1.32E-03	8.00E-04	Exceeds	HAP
Formaldehyde	50-00-0	1.18E-03	1.01E-03	3.34E+00	1.67E-03	5.10E-04	Exceeds	HAP
Naphthalene	91-20-3	8.48E-05	7.28E-05	2.40E-01	1.20E-04	3.33E+00	Below	HAP
Toluene	108-88-3	4.09E-04	3.51E-04	1.16E+00	5.79E-04	2.50E+01	Below	HAP
o-Xylenes	1330-20-7	2.85E-04	2.45E-04	8.08E-01	4.04E-04	2.90E+01	Below	HAP
Propylene	115-07-1	2.58E-03	2.22E-03	7.31E+00	3.66E-03	NA	NA	HAP
Acetaldehyde	75-07-0	7.67E-04	6.59E-04	2.17E+00	1.09E-03	3.00E-03	Below	HAP
Acrolein	107-02-8	9.25E-05	7.94E-05	2.62E-01	1.31E-04	1.70E-02	Below	HAP
1,3-Butadiene	106-99-0	3.91E-05	3.36E-05	1.11E-01	5.54E-05	2.40E-05	Exceeds	HAP
Acenaphthene	83-32-9	1.42E-06	1.22E-06	4.02E-03	2.01E-06	NA	NA	
Acenaphthylene	203-96-8	5.06E-06	4.34E-06	1.43E-02	7.17E-06	NA	NA	
Anthracene	120-12-7	1.87E-06	1.61E-06	5.30E-03	2.65E-06	NA	NA	
Benz(a)anthracene	56-55-3	1.68E-06	1.44E-06	4.76E-03	2.38E-06	NA	NA	
Benzo(b)fluoranthene	205-99-2	9.91E-08	8.51E-08	2.81E-04	1.40E-07	NA	NA	
Benzo(k)fluoranthene	205-82-3	1.55E-07	1.33E-07	4.39E-04	2.20E-07	NA	NA	
Benzo(g,h,i)perylene	191-24-2	4.89E-07	4.20E-07	1.39E-03	6.93E-07	NA	NA	
Chrysene	218-01-9	3.53E-07	3.03E-07	1.00E-03	5.00E-07	NA	NA	
Dibenzo(a,h)anthracene	53-70-3	5.83E-07	5.01E-07	1.65E-03	8.26E-07	NA	NA	
Indeno(1,2,3-cd)pyrene	193-39-5	3.75E-07	3.22E-07	1.06E-03	5.31E-07	NA	NA	
Benzo(a)pyrene	50-32-8	1.88E-07	1.61E-07	5.33E-04	2.66E-07	NA	NA	
Total PAH			3.37E-06	1.11E-02	5.56E-06	2.00E-06	Exceeds	
Fluoranthene	206-44-0	7.61E-06	6.53E-06	2.16E-02	1.08E-05	NA	NA	
Fluorene	86-73-7	2.92E-05	2.51E-05	8.27E-02	4.14E-05	NA	NA	
Phenanthrene	85-01-8	2.94E-05	2.52E-05	8.33E-02	4.17E-05	NA	NA	
Pyrene	129-00-0	4.78E-06	4.10E-06	1.35E-02	6.77E-06	NA	NA	
Total HAPS			5.47E-03		9.02E-03			

¹ PM is assumed to equal PM₁₀ (AP-42, Table 3.3-1, 10/96)

² PM_{2.5} is assumed to equal PM₁₀ (AP-42, Table 3.3-1, 10/96)

³ PM₁₀ emission factor (AP-42, Table 3.3-1, 10/96)

⁴ NOx, CO and TOC emission factors (Table 3.3-1, 10/96). Note TOC is based on exhaust emission factor for VOC.

⁵ SO₂ is based on AP-42, Table 3.4-1, 10/96, multiplied by sulfur content of fuel

Potential Emission Calculations

Table D11 - ACLF - HHHW Facility Diesel Engine Emissions (Gen 3)

Emission Point No.	SC-E-2	
Model No.	Detroit Diesel 30DS60	
Engine Power Rating (bhp)	44	
Fuel Type	Distillate #2	
- maximum sulfur content	0.0015%	Ultra low sulfur fuel
Maximum Firing Rate (gals/hr)	3.0	
Maximum Heat Input Rating (Btu/hr)	420,000	
	(hp)	Small Engine
Maximum Hours of Operation	500	
Maximum Firing Rate (gals/yr)	1,500	
Heat Capacity of Fuel (Btu/gal)	140,000	

Pollutant	CAS No.	Emission Factor (lb/MMBtu)	Uncontrolled Potential to Emit			
			Emission Rate (lb/hr)	Emission Rate (lb/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)
Total Particulate Matter (PM) ¹		0.31	0.13	65	0.033	
Total Particulate Matter (PM _{2.5}) ²		0.31	0.13	65	0.033	
Particulate Matter (PM ₁₀) ³		0.31	0.13	65	0.033	
Nitrogen Oxides (NOx) ⁴		4.41	1.85	926	0.46	
Sulfur Oxides (SO ₂) ⁵		0.00152	0.0006	0.318	0.00016	
Carbon Monoxide (CO) ⁴		0.95	0.40	200	0.10	
TOC as VOC ⁴		0.35	0.15	74	0.04	

	CAS Number	Emission Factor (lb/MMBtu)	Uncontrolled Potential to Emit				IDAPA 58.01.01.585/5 86 - EL (lb/hr)	PTE Emission Rate vs. EL	HAP
			Emission Rate (lb/hr)	Emission Rate (lb/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)			
Benzene	71-43-2	9.33E-04	3.92E-04	1.96E-01	9.80E-05	8.00E-04	Below	HAP	
Formaldehyde	50-00-0	1.18E-03	4.96E-04	2.48E-01	1.24E-04	5.10E-04	Below	HAP	
Naphthalene	91-20-3	8.48E-05	3.56E-05	1.78E-02	8.90E-06	3.33E+00	Below	HAP	
Toluene	108-88-3	4.09E-04	1.72E-04	8.59E-02	4.29E-05	2.50E+01	Below	HAP	
o-Xylenes	1330-20-7	2.85E-04	1.20E-04	5.99E-02	2.99E-05	2.90E+01	Below	HAP	
Propylene	115-07-1	2.58E-03	1.08E-03	5.42E-01	2.71E-04	NA	NA	HAP	
Acetaldehyde	75-07-0	7.67E-04	3.22E-04	1.61E-01	8.05E-05	3.00E-03	Below	HAP	
Acrolein	107-02-8	9.25E-05	3.89E-05	1.94E-02	9.71E-06	1.70E-02	Below	HAP	
1,3-Butadiene	106-99-0	3.91E-05	1.64E-05	8.21E-03	4.11E-06	2.40E-05	Below	HAP	
Acenaphthene	83-32-9	1.42E-06	5.96E-07	2.98E-04	1.49E-07	NA	NA		
Acenaphthylene	203-96-8	5.06E-06	2.13E-06	1.06E-03	5.31E-07	NA	NA		
Anthracene	120-12-7	1.87E-06	7.85E-07	3.93E-04	1.96E-07	NA	NA		
Benz(a)anthracene	56-55-3	1.68E-06	7.06E-07	3.53E-04	1.76E-07	NA	NA		
Benzo(b)fluoranthene	205-99-2	9.91E-08	4.16E-08	2.08E-05	1.04E-08	NA	NA		
Benzo(k)fluoranthene	205-82-3	1.55E-07	6.51E-08	3.26E-05	1.63E-08	NA	NA		
Benzo(g,h,i)perylene	191-24-2	4.89E-07	2.05E-07	1.03E-04	5.13E-08	NA	NA		
Chrysene	218-01-9	3.53E-07	1.48E-07	7.41E-05	3.71E-08	NA	NA		
Dibenzo(a,h)anthracene	53-70-3	5.83E-07	2.45E-07	1.22E-04	6.12E-08	NA	NA		
Indeno(1,2,3-cd)pyrene	193-39-5	3.75E-07	1.58E-07	7.88E-05	3.94E-08	NA	NA		
Benzo(a)pyrene	50-32-8	1.88E-07	7.90E-08	3.95E-05	1.97E-08	NA	NA		
Total PAH			1.65E-06	8.24E-04	4.12E-07	2.00E-06	Below		
Fluoranthene	206-44-0	7.61E-06	3.20E-06	1.60E-03	7.99E-07	NA	NA		
Fluorene	86-73-7	2.92E-05	1.23E-05	6.13E-03	3.07E-06	NA	NA		
Phenanthrene	85-01-8	2.94E-05	1.23E-05	6.17E-03	3.09E-06	NA	NA		
Pyrene	129-00-0	4.78E-06	2.01E-06	1.00E-03	5.02E-07	NA	NA		
Total HAPS			2.68E-03		6.69E-04				

¹ PM is assumed to equal PM₁₀ (AP-42, Table 3.3-1, 10/96)

² PM_{2.5} is assumed to equal PM₁₀ (AP-42, Table 3.3-1, 10/96)

³ PM₁₀ emission factor (AP-42, Table 3.3-1, 10/96)

⁴ NOx, CO and TOC emission factors (Table 3.3-1, 10/96). Note TOC is based on exhaust emission factor for VOC.

⁵ SO₂ is based on AP-42, Table 3.4-1, 10/96, multiplied by sulfur content of fuel

Potential Emission Calculations

Table D12 - ACLF - Scales Emergency Backup Generator (Gen 4)

Emission Point No.	SC-E-2	
Model No.	John Deere	
Engine Power Rating (bhp)	4024 HF 285	
Fuel Type	80	
- maximum sulfur content	Distillate #2	Ultra low sulfur fuel
Maximum Firing Rate (gals/hr)	0.0015%	
Maximum Heat Input Rating (Btu/hr)	4.6	
	(hp)	648,000
Maximum Hours of Operation	255	Small Engine
Maximum Firing Rate (gals/yr)	500	
Heat Capacity of Fuel (Btu/gal)	2,314	
	140,000	

Pollutant	CAS No.	Emission Factor (lb/MMBtu)	Uncontrolled Potential to Emit		
			Emission Rate (lb/hr)	Emission Rate (lb/yr)	Emission Rate (ton/yr)
Total Particulate Matter (PM) ¹		0.31	0.20	100	0.050
Total Particulate Matter (PM _{2.5}) ²		0.31	0.20	100	0.05
Particulate Matter (PM ₁₀) ³		0.31	0.20	100	0.05
Nitrogen Oxides (NOx) ⁴		4.41	2.86	1,429	0.71
Sulfur Oxides (SO ₂) ⁵		0.00152	0.0010	0.491	0.00025
Carbon Monoxide (CO) ⁴		0.95	0.62	308	0.15
TOC as VOC ⁴		0.35	0.23	113	0.06

	CAS Number	Emission Factor (lb/MMBtu)	Emission Rate (lb/hr)	Emission Rate (lb/yr)	Emission Rate (ton/yr)	Uncontrolled Potential to Emit		
						IDAPA 58.01.01.585/5 86 - EL (lb/hr)	PTE Emission Rate vs. EL	HAP
Benzene	71-43-2	9.33E-04	6.05E-04	3.02E-01	1.51E-04	8.00E-04	Below	HAP
Formaldehyde	50-00-0	1.18E-03	7.65E-04	3.82E-01	1.91E-04	5.10E-04	Exceeds	HAP
Naphthalene	91-20-3	8.48E-05	5.50E-05	2.75E-02	1.37E-05	3.33E+00	Below	HAP
Toluene	108-88-3	4.09E-04	2.65E-04	1.33E-01	6.63E-05	2.50E+01	Below	HAP
o-Xylenes	1330-20-7	2.85E-04	1.85E-04	9.23E-02	4.62E-05	2.90E+01	Below	HAP
Propylene	115-07-1	2.58E-03	1.67E-03	8.36E-01	4.18E-04	NA	NA	HAP
Acetaldehyde	75-07-0	7.67E-04	4.97E-04	2.49E-01	1.24E-04	3.00E-03	Below	HAP
Acrolein	107-02-8	9.25E-05	5.99E-05	3.00E-02	1.50E-05	1.70E-02	Below	HAP
1,3-Butadiene	106-99-0	3.91E-05	2.53E-05	1.27E-02	6.33E-06	2.40E-05	Exceeds	HAP
Acenaphthene	83-32-9	1.42E-06	9.20E-07	4.60E-04	2.30E-07	NA	NA	
Acenaphthylene	203-96-8	5.06E-06	3.28E-06	1.64E-03	8.20E-07	NA	NA	
Anthracene	120-12-7	1.87E-06	1.21E-06	6.06E-04	3.03E-07	NA	NA	
Benz(a)anthracene	56-55-3	1.68E-06	1.09E-06	5.44E-04	2.72E-07	NA	NA	
Benzo(b)fluoranthene	205-99-2	9.91E-08	6.42E-08	3.21E-05	1.61E-08	NA	NA	
Benzo(k)fluoranthene	205-82-3	1.55E-07	1.00E-07	5.02E-05	2.51E-08	NA	NA	
Benzo(g,h,i)perylene	191-24-2	4.89E-07	3.17E-07	1.58E-04	7.92E-08	NA	NA	
Chrysene	218-01-9	3.53E-07	2.29E-07	1.14E-04	5.72E-08	NA	NA	
Dibenzo(a,h)anthracene	53-70-3	5.83E-07	3.78E-07	1.89E-04	9.44E-08	NA	NA	
Indeno(1,2,3-cd)pyrene	193-39-5	3.75E-07	2.43E-07	1.22E-04	6.08E-08	NA	NA	
Benzo(a)pyrene	50-32-8	1.88E-07	1.22E-07	6.09E-05	3.05E-08	NA	NA	
Total PAH			2.54E-06	1.27E-03	6.35E-07	2.00E-06	Exceeds	
Fluoranthene	206-44-0	7.61E-06	4.93E-06	2.47E-03	1.23E-06	NA	NA	
Fluorene	86-73-7	2.92E-05	1.89E-05	9.46E-03	4.73E-06	NA	NA	
Phenanthrene	85-01-8	2.94E-05	1.91E-05	9.53E-03	4.76E-06	NA	NA	
Pyrene	129-00-0	4.78E-06	3.10E-06	1.55E-03	7.74E-07	NA	NA	
Total HAPS			4.13E-03		1.03E-03			

¹ PM is assumed to equal PM₁₀ (AP-42, Table 3.3-1, 10/96)

² PM_{2.5} is assumed to equal PM₁₀ (AP-42, Table 3.3-1, 10/96)

³ PM₁₀ emission factor (AP-42, Table 3.3-1, 10/96)

⁴ NOx, CO and TOC emission factors (Table 3.3-1, 10/96). Note TOC is based on exhaust emission factor for VOC.

⁵ SO₂ is based on AP-42, Table 3.4-1, 10/96, multiplied by sulfur content of fuel

Potential Emission Calculations

Table D13 - ACLF - Wood Chipper

Fugitive Dust Emissions - based on log debarking EF and material transfer equation

Assumptions

Wood Chips/Sawdust Production Rate:

Based on grinder loading

Annual Operating Hours:

150,150	tons/yr
11.0	hours/day

6 days/week
50 wk/yr

Actual Average: 45.5 tons/hour

Emission Factors

Log Debarking	1.10E-02 lb PM ₁₀ /ton	FIRE Database, SCC30700801
Material Transfer	E _{PM10} lb PM ₁₀ /ton	AP-42, Section 13.2.4, Eqn. (1)
$E_{PM10} = k * 0.0032 * (U/5)^{1.3} / (M/2)^{1.4}$ <p>Where:</p> <ul style="list-style-type: none"> k = particle size multiplier; 0.35 for < 10 micron particles U = mean wind speed (mph) <li style="padding-left: 40px;">= 9 mph (Ref: Climatic Wind Data for the United States, Nov. 1998) M = material moisture content (%) <li style="padding-left: 40px;">= 11 % $E_{PM10} = k * 0.0032 * (U/5)^{1.3} / (M/2)^{1.4}$ $= 2.21E-04 \text{ lb PM}_{10}/\text{ton}$		

Revised Fugitive Emission Estimates:

Wood Chipper Emissions: 5.0050E-01 lb PM₁₀/hr - based on log debarking factor

Transfer Point Emissions = 2.0119E-02 lb PM₁₀/hr - based on material transfer factor
- assume two transfer points

Total Wood Chipper Fugitive PM₁₀ Emissions:

0.521 lb PM₁₀/hr - based on log debarking factor

Annual Total: 0.8590 tons/year - based on log debarking factor

Note:

Assume PM10 is equal to PM2.5

Potential Emission Calculations

Table D14 - ACLF - Power Screen

Fugitive Dust Emissions - Based on material transfer equation

Assumptions

Wood Chips/Sawdust Production Rate:

Based on grinder loading

Annual Operating Hours:

150,150	tons/yr
11.0	hours/day

6 days/week
50 wk/yr

Actual Average:

45.5 tons/hour

- as an annual hourly average
(based on actual 2010 data)

Emission Factors

Material Transfer	$E_{PM2.5}$	lb PM2.5/ton	AP-42, Section 13.2.4, Eqn. (1)
$E_{PM2.5} = k * 0.0032 * (U/5)^{1.3} / (M/2)^{1.4}$			
Where:			
k = particle size multiplier; 0.053 for < 2.5 micron particles			
U = mean wind speed (mph)			
= 9 mph (Ref: Climatic Wind Data for the United States, Nov. 1998)			
M = material moisture content (%)			
= 11 %			
$E_{PM2.5} = k * 0.0032 * (U/5)^{1.3} / (M/2)^{1.4}$			
= 3.35E-05 lb/ton PM2.5			

Revised Fugitive Emission Estimates:

Power Screen Emissions: 1.52E-03 lb/hr PM2.5 - based on material transfer factor

Transfer Point Emissions = 3.05E-03 lb/hr PM2.5 - based on material transfer factor
- assume two transfer points

Total Power Screen Fugitive PM2.5 Emissions:

0.0046 lb/hr PM2.5 - based on material transfer factor

Annual Total: 0.0075 tons/year - based on material transfer factor

Potential Emission Calculations

Table D16 - ACLF - Storage Piles

Fugitive Dust Emissions - Based on material transfer equation

Assumptions

Wood Chips/Sawdust Production Rate:

Based on grinder loading

Operation Schedule:

11.0 hours/day

6 days/week

Annual Maximum Hours

3300

50 weeks/year

Annual Maximum

150,150 tons/yr

Maximum:

45.5 tons/hour

Emission Factors

Material Transfer	$E_{PM2.5}$	lb PM2.5/ton	AP-42, Section 13.2.4, Eqn. (1) dated 11/06
	$E_{PM2.5} = k * 0.0032 * (U/5)^{1.3} / (M/2)^{1.4}$		
	Where:		
	k = particle size multiplier; 0.053 for < 10 micron particles		
	U = mean wind speed (mph)		
	=	9 mph	(Ref: Climatic Wind Data for the United States, Nov. 1998)
	M = material moisture content (%)		
	=	11 %	
	$E_{PM2.5} = k * 0.0032 * (U/5)^{1.3} / (M/2)^{1.4}$		
	=	3.35E-05 lb/ton PM2.5	

Revised Fugitive Emission Estimates:

Storage Pile Emissions =

1.52E-03 lb/hr PM2.5

- based on material transfer factor

Total Storage Pile Fugitive PM2.5 Emissions:

0.0015 lb/hr PM2.5

- based on material transfer factor

Annual Total:

0.0025 tons/year PM2.5

- based on material transfer factor

Note:

Assume actual emissions are equal to potential emissions

Potential Emission Calculations

Table D17 - ACLF - Storage Piles

Fugitive Dust Emissions - Based on material transfer equation

Assumptions

Wood Chips/Sawdust Production Rate:

Based on grinder loading

Operation Schedule: 11.0 hours/day
Annual Maximum Hours 3300

6 days/week
50 weeks/year

Annual Maximum Maximum: 150,150 tons/yr
45.5 tons/hour

Emission Factors

Material Transfer	E_{PM10}	lb PM ₁₀ /ton	AP-42, Section 13.2.4, Eqn. (1) dated 11/06
	$E_{PM10} = k * 0.0032 * (U/5)^{1.3} / (M/2)^{1.4}$		
	Where:		
	k = particle size multiplier; 0.35 for < 10 micron particles		
	U = mean wind speed (mph)		
	= 9 mph		(Ref: Climatic Wind Data for the United States, Nov. 1998)
	M = material moisture content (%)		
	= 11 %		
	$E_{PM10} = k * 0.0032 * (U/5)^{1.3} / (M/2)^{1.4}$		
	=	2.21E-04 lb/ton PM10	

Revised Fugitive Emission Estimates:

Storage Pile Emissions = 1.01E-02 lb/hr PM10 - based on material transfer factor

Total Storage Pile Fugitive PM₁₀ Emissions:

0.0101 lb/hr PM10 - based on material transfer factor

Annual Total: 0.0166 tons/year PM10 - based on material transfer factor

Actual and Potential Emissions for Paved and Unpaved Haul Roads at the ACLF D18 - Unpaved Roads Worksheet

Unpaved road emission factor to HHLF Cell (Operations Staging Area to working face)

$$E = \frac{k(s/12)^a(S/30)^d}{(M/0.5)^c} - C \quad (\text{AP 42 Equation 13.2.2-3 (1b)}) \quad (\text{November 2006})$$

	k - PM10 (lb/VMT)	k - PM2.5 (lb/VMT)	s (%)	S (MPH)	C - PM10 (lb/VMT)	C - PM2.5 (lb/VMT)	M (%)	a	c	d	E - PM10 (lb/VMT)	E - PM2.5 (lb/VMT)
Standard Pickup	1.8	0.18	6.4	15	0.00047	0.00036	15	1	0.2	0.5	0.343	0.034
Large Pickup/trailer	1.8	0.18	6.4	15	0.00047	0.00036	15	1	0.2	0.5	0.343	0.034
3 axel or more truck	1.8	0.18	6.4	15	0.00047	0.00036	15	1	0.2	0.5	0.343	0.034

Notes:

- E Size-specific emission factor
- s Surface material silt content, AP-42 Table 13.2.2-1
- M Surface material moisture content
- S Mean Vehicle speed
- C Emission factor for 1980's vehicle fleet exhaust, brake wear and tire wear, AP-42 Table 13.2.2-4
- k Empirical constant for PM₁₀, AP-42 Table 13.2.2-2
- a Empirical constant for PM₁₀, AP-42 Table 13.2.2-2
- c Empirical constant for PM₁₀, AP-42 Table 13.2.2-2
- d Empirical constant for PM₁₀, AP-42 Table 13.2.2-2

	Haul truck load (tons/truck)	Day open per year	Amount hauled (per year)	Percentage trucked	Amount hauled (per day)	Hauling hours (per day)	Amount hauled (per hour)	Haul road round trip (miles)	Round trips (per hour)	round trips (per year)	VMT (per hour)	VMT (annual)
Standard Pickup	0.5	306	66389	60%	216.96	11.00	19.72	1.00	39.45	132,777.60	39.45	132,778
Large Pickup/trailer	2	306	22130	20%	72.32	11.00	6.57	1.00	3.29	11,064.90	3.29	11,065
3 axel or more truck	5	306	22129	20%	72.32	11.00	6.57	1.00	1.31	4,425.84	1.31	4,426
Total			110648	100%	361.59		32.87		44.05	148,268.34	44.05	148,268

With the addition of rain and watering the unpaved haul roads

$$E_{ext} = E [(365 - P)/365]$$

	E (PM ₁₀)	E (PM _{2.5})	P	E _{ext} (PM ₁₀)	E _{ext} (PM _{2.5})	PM10 Emissions (lb/hr)	PM10 Emissions (ton/yr)	PM2.5 Emissions (lb/hr)	PM2.5 Emissions (ton/yr)
Standard Pickup	0.343	0.034	90	0.259	0.026	13.54	22.8	1.01	1.70
Large Pickup/trailer	0.343	0.034	90	0.259	0.026	1.13	1.9	0.084	0.14
3 axel or more truck	0.343	0.034	90	0.259	0.026	0.45	0.8	0.034	0.06
Total						15.12	25.5	1.13	1.9

Notes:
P = number of days in a year with rainfall accumulation no less than 0.01 inches. AP-42 Figure 13.2.2-1

Unpaved road emission factor for NRC

$$E = \frac{k(s/12)^a(S/30)^d}{(M/0.5)^c} - C \quad (\text{AP 42 Equation 13.2.2-3 (1b)}) \quad (\text{November 2006})$$

	k - PM10 (lb/VMT)	k - PM2.5 (lb/VMT)	s (%)	S (MPH)	C - PM10 (lb/VMT)	C - PM2.5 (lb/VMT)	M (%)	a	c	d	E - PM10 (lb/VMT)	E - PM2.5 (lb/VMT)
Standard Pickup	1.8	0.18	6.4	15	0.00047	0.00036	15	1	0.2	0.5	0.343	0.034
Large Pickup/trailer	1.8	0.18	6.4	15	0.00047	0.00036	15	1	0.2	0.5	0.343	0.034
3 axel or more truck	1.8	0.18	6.4	15	0.00047	0.00036	15	1	0.2	0.5	0.343	0.034

Notes:

- E Size-specific emission factor
- s Surface material silt content, AP-42 Table 13.2.2-1
- M Surface material moisture content
- S Mean Vehicle speed
- C Emission factor for 1980's vehicle fleet exhaust, brake wear and tire wear, AP-42 Table 13.2.2-4
- k Empirical constant for PM₁₀, AP-42 Table 13.2.2-2
- a Empirical constant for PM₁₀, AP-42 Table 13.2.2-2
- c Empirical constant for PM₁₀, AP-42 Table 13.2.2-2
- d Empirical constant for PM₁₀, AP-42 Table 13.2.2-2

	Haul truck load (tons/truck)	Day open per year	Amount hauled (per year)	Percentage trucked	Amount hauled (per day)	Hauling hours (per day)	Amount hauled (per hour)	Haul road round trip (miles)	Round trips (per hour)	round trips (per year)	VMT (per hour)	VMT (annual)
Standard Pickup	0.5	306	44259	60%	144.64	11	13.15	1	26.30	88518	26.30	88518.40
Large Pickup/trailer	2	306	14753	20%	48.21	11	4.38	1	2.19	7377	2.19	7376.60
3 axel or more truck	5	306	14753	20%	48.21	11	4.38	1	0.88	2951	0.88	2950.56
Total			73765	100%	241.06		21.91		29.37	98846	29.37	98845.56

With the addition of rain and watering the unpaved haul roads

$$E_{ext} = E [(365 - P)/365]$$

	E (PM ₁₀)	E (PM _{2.5})	P	E _{ext} (PM ₁₀)	E _{ext} (PM _{2.5})	PM10 Emissions (lb/hr)	PM10 Emissions (ton/yr)	PM2.5 Emissions (lb/hr)	PM2.5 Emissions (ton/yr)
Standard Pickup	0.343	0.034	90	0.259	0.026	9.03	15.2	0.67	1.13
Large Pickup/trailer	0.343	0.034	90	0.259	0.026	0.75	1.3	0.056	0.09
3 axel or more truck	0.000	0.000	90	0.000	0.000	0.00	0.0	0.000	0.00
Total						9.78	16.5	0.73	1.2

Notes:
P = number of days in a year with rainfall accumulation no less than 0.01 inches. AP-42 Figure 13.2.2-1

Unpaved road emission factor for Wood Chipper

$$E = \frac{k(s/12)^2(S/30)^4 - C}{(M/0.5)^2} \quad (\text{AP 42 Equation 13.2.2-3 (1b)}) \quad (\text{November 2006})$$

	k - PM10 (lb/VMT)	k - PM2.5 (lb/VMT)	s (%)	S (MPH)	C - PM10 (lb/VMT)	C - PM2.5 (lb/VMT)	M (%)	a	c	d	E - PM10 (lb/VMT)	E - PM2.5 (lb/VMT)
Standard Pickup	1.8	0.18	6.4	15	0.00047	0.00036	15	1	0.2	0.5	0.343	0.034
Large Pickup/trailer	1.8	0.18	6.4	15	0.00047	0.00036	15	1	0.2	0.5	0.343	0.034
3 axel or more truck	1.8	0.18	6.4	15	0.00047	0.00036	15	1	0.2	0.5	0.343	0.034

Notes:
E Size-specific emission factor
s Surface material silt content, AP-42 Table 13.2.2-1
M Surface material moisture content
S Mean Vehicle speed
C Emission factor for 1980's vehicle fleet exhaust, brake wear and tire wear, AP-42 Table 13.2.2-4
k Empirical constant for PM₁₀, AP-42 Table 13.2.2-2
a Empirical constant for PM₁₀, AP-42 Table 13.2.2-2
c Empirical constant for PM₁₀, AP-42 Table 13.2.2-2
d Empirical constant for PM₁₀, AP-42 Table 13.2.2-2

	Haul truck load (tons/truck)	Day open per year	Amount hauled (per year)	Percentage trucked	Amount hauled (per day)	Hauling hours (per day)	Amount hauled (per hour)	Haul road round trip (miles)	Round trips (per hour)	round trips (per year)	VMT (per hour)	VMT (annual)
Standard Pickup	0.5	306	44259	60%	144.64	11	13.15	0.22	26.30	88518	5.79	19474.05
Large Pickup/trailer	2	306	14753	20%	48.21	11	4.38	0.22	2.19	7377	0.48	1622.85
3 axel or more truck	5	306	14753	20%	48.21	11	4.38	0.22	0.88	2951	0.19	649.12
Total			73765	100%	241.06		21.91		29.37	98846	6.46	21746.02

With the addition of rain and watering the unpaved haul roads

$$E_{ext} = E [(365 - P)/365]$$

	E (PM ₁₀)	E (PM _{2.5})	P	E _{ext} (PM ₁₀)	E _{ext} (PM _{2.5})	PM10 Emissions (lb/hr)	PM10 Emissions (ton/yr)	PM2.5 Emissions (lb/hr)	PM2.5 Emissions (ton/yr)
Standard Pickup	0.343	0.034	90	0.259	0.026	1.99	3.3	0.15	0.25
Large Pickup/trailer	0.343	0.034	90	0.259	0.026	0.17	0.3	0.012	0.02
3 axel or more truck	0.000	0.000	90	0.000	0.000	0.00	0.0	0.000	0.00
Total						2.15	3.62	0.16	0.27

Notes:
P = number of days in a year with rainfall accumulation no less than 0.01 inches. AP-42 Figure 13.2.2-1

Actual and Potential Emissions for Paved and Unpaved Haul Roads at the ACLF D19 - Paved Roads Worksheet

Paved road emission factor to Household hazardous waste building

$$E = k(sL)^{0.91}(W)^{1.02} \text{ AP-42 Equation 13.2.1.3 (1) (January 2011)}$$

	k - PM10 (lb/VMT)	k - PM2.5 (lb/VMT)	sL (g/m2)	W (tons)	E - PM10 (lb/VMT)	E - PM2.5 (lb/VMT)
Standard Pickup	0.0022	0.00054	7.4	2.5	0.035	0.0085

Notes:

E = Particulate emission factor

k = Particle size multiplier for particle size range and units of interest, AP-42 Table 13.2.1-1

sL = road surface silt loading, AP-42 Table 13.2.1-3

W = Average weight of the vehicles traveling the road

	Days open per year	Amount hauled (Trips per year)	Percentage trucked	Amount hauled (Trips per day)	Hauling hours (per day)	Amount hauled (trips per hour)	Haul road round trip (miles)	VMT (per hour)	VMT (annual)	PM10 (lb/hr)	PM10 (ton/yr)	PM2.5 (lb/hr)	PM2.5 (ton/yr)
Standard Pickup	100	6700	100%	67.00	11	6.09	1.08	6.58	7236.00	0.228	0.13	0.056	0.031
Total		6700	100%	67.00		6.09		6.58	7236.00	0.228	0.13	0.056	0.031

Paved road emission factor to Operations Staging Area (HHLF Cell)

$$E = k(sL)^{0.91}(W)^{1.02} \text{ AP-42 Equation 13.2.1.3 (1) (January 2011)}$$

	k - PM10 (lb/VMT)	k - PM2.5 (lb/VMT)	sL (g/m2)	W (tons)	E - PM10 (lb/VMT)	E - PM2.5 (lb/VMT)
Standard Pickup	0.0022	0.00054	7.4	2.5	0.035	0.0085
Large Pickup/trailer	0.0022	0.00054	7.4	5	0.070	0.017
3 axel or more truck	0.0022	0.00054	7.4	13	0.186	0.046

Notes:

E = Particulate emission factor

k = Particle size multiplier for particle size range and units of interest, AP-42 Table 13.2.1-1

sL = road surface silt loading, AP-42 Table 13.2.1-3

W = Average weight of the vehicles traveling the road

	Haul truck load (tons/truck)	Day open per year	Amount hauled (per year)	Percentage trucked	Amount hauled (per day)	Hauling hours (per day)	Amount hauled (per hour)	Haul road round trip (miles)	Round trips (per hour)	round trips (per year)	VMT (per hour)	VMT (annual)	PM10 (lb/hr)	PM10 (ton/yr)	PM2.5 (lb/hr)	PM2.5 (ton/yr)
Standard Pickup	0.5	306	66389	60%	216.96	11	19.72	2	39.45	132778	78.89	265555	2.731	4.60	0.670	1.128
Large Pickup/trailer	2	306	22130	20%	72.32	11	6.57	2	3.29	11065	6.57	22130	0.462	0.78	0.113	0.191
3 axel or more truck	5	306	22129	20%	72.32	11	6.57	2	1.31	4426	2.63	8852	0.489	0.82	0.120	0.202
Total			110648	100%	361.59		32.87		44.05	148268	88.10	296537	3.68	6.20	0.90	1.52

Paved road emission factor to new NRC

$$E = k(sL)^{0.91}(W)^{1.02} \text{ AP-42 Equation 13.2.1.3 (1) (January 2011)}$$

	k - PM10 (lb/VMT)	k - PM2.5 (lb/VMT)	sL (g/m2)	W (tons)	E - PM10 (lb/VMT)	E - PM2.5 (lb/VMT)
Standard Pickup	0.0022	0.00054	7.4	2.5	0.035	0.0085

Large Pickup/trailer	0.0022	0.00054	7.4	5	0.070	0.017
3 axel or more truck	0.0022	0.00054	7.4	13	0.186	0.046

Notes:

E = Particulate emission factor
k = Particle size multiplier for particle size range and units of interest, AP-42 Table 13.2.1-1
sL = road surface silt loading, AP-42 Table 13.2.1-3
W = Average weight of the vehicles traveling the road

	Haul truck load (tons/truck)	Day open per year	Amount hauled (per year)	Percentage trucked	Amount hauled (per day)	Hauling hours (per day)	Amount hauled (per hour)	Haul road round trip (miles)	Round trips (per hour)	round trips (per year)	VMT (per hour)	VMT (annual)	PM10 (lb/hr)	PM10 (ton/yr)	PM2.5 (lb/hr)	PM2.5 (ton/yr)
Standard Pickup	0.5	306	44259	60%	144.64	11	13.15	4.5	26.30	88518	118.34	398333	4.097	6.90	1.006	1.692
Large Pickup/trailer	2	306	14753	20%	48.21	11	4.38	4.5	2.19	7377	9.86	33195	0.692	1.17	0.170	0.286
3 axel or more truck	5	306	14753	20%	48.21	11	4.38	4.5	0.88	2951	3.94	13278	0.734	1.24	0.180	0.303
Total			73765	100%	241.06		21.91		29.37	98846	132.15	444805	5.52	9.30	1.36	2.28

Paved road emission factor to the landfill office

$$E = k(sL)^{0.91}(W)^{1.02} \text{ AP-42 Equation 13.2.1.3 (1) (January 2011)}$$

	k - PM10 (lb/VMT)	k - PM2.5 (lb/VMT)	sL (g/m2)	W (tons)	E - PM10 (lb/VMT)	E - PM2.5 (lb/VMT)
Standard Pickup	0.0022	0.00054	7.4	2.5	0.035	0.0085

Notes:

E = Particulate emission factor
k = Particle size multiplier for particle size range and units of interest, AP-42 Table 13.2.1-1
sL = road surface silt loading, AP-42 Table 13.2.1-3
W = Average weight of the vehicles traveling the road

	Days open per year	Trips (per year)	Percentage trucked	Trips (per day)	Hauling hours (per day)	Trips (per hour)	Haul road round trip (miles)	VMT (per hour)	VMT (annual)	PM10 (lb/hr)	PM10 (ton/yr)	PM2.5 (lb/hr)	PM2.5 (ton/yr)
Standard Pickup	306	2400	100%	7.84	11	0.71	0.26	0.19	624.00	0.006	0.01	0.002	0.003
Total		2400	100%	7.84		0.71		0.19	624.00	0.006	0.01	0.002	0.003

Paved road emission factor to the wood chipping

$$E = k(sL)^{0.91}(W)^{1.02} \text{ AP-42 Equation 13.2.1.3 (1) (January 2011)}$$

	k - PM10 (lb/VMT)	k - PM2.5 (lb/VMT)	sL (g/m2)	W (tons)	E - PM10 (lb/VMT)	E - PM2.5 (lb/VMT)
Standard Pickup	0.0022	0.00054	7.4	2.5	0.035	0.0085

Notes:

E = Particulate emission factor
k = Particle size multiplier for particle size range and units of interest, AP-42 Table 13.2.1-1
sL = road surface silt loading, AP-42 Table 13.2.1-3
W = Average weight of the vehicles traveling the road

	Days open per year	Trips (per year)	Percentage trucked	Trips (per day)	Hauling hours (per day)	Trips (per hour)	Haul road round trip (miles)	VMT (per hour)	VMT (annual)	PM10 (lb/hr)	PM10 (ton/yr)	PM2.5 (lb/hr)	PM2.5 (ton/yr)
Standard Pickup	306	2400	100%	7.84	11	0.71	2	1.43	4800.00	0.049	0.08	0.012	0.020
Total		2400	100%	7.84		0.71		1.43	4800.00	0.049	0.08	0.012	0.020

Actual Emission Calculations

Table D20 - Summary for Paved Roads

Destination	Annual Trips	Annual PM10 (lb/hr)	Annual PM10 (ton/yr)	Annual PM.5 (lb/hr)	Annual PM.5 (ton/yr)
Landfill office	2,400	0.0064	0.011	0.0016	0.003
Household hazardous waste	6,700	0.23	0.13	0.056	0.03
HHLF	148,268	3.68	6.20	0.90	1.52
NRC	98,846	5.52	9.30	1.36	2.28
Wood Chipping	2,400	0.049	0.08	0.012	0.02
Total	256,214	9.49	15.71	2.33	3.86

Table D21 - Summary for Unpaved Roads

Destination	Annual Trips	Annual PM10 Emissions w/water suppressant (lb/hr)	Annual PM10 Emissions w/water suppressant (ton/yr)	Annual PM2.5 Emissions w/water suppressant (lb/hr)	Annual PM2.5 Emissions w/water suppressant (ton/yr)
HHLF	148,268	15.12	25.45	1.13	1.90
NRC	98,846	9.78	16.46	0.73	1.23
Wood Chipping	73,765	2.15	3.62	0.16	0.27
Total	247114	27.06	45.54	2.02	3.40

Note:
Assume actual emissions are equal to potential emissions

Actual Emission Calculations

D22 - Landfill Operations (Fugitive Dust Emissions)

Assumptions:

Emission Factors Equations were derived from AP-42, Section 11.9 - Western Surface Coal Mining, Table 11.9-1, dated 10/98

<i>Bulldozing (Overburden Material) - Particulate Matter ≤ 15 um: Table 11.9-1, Overburden</i>
$BEF = 1.0(s)^{1.5}/(M)^{1.4} * (0.105)^a$ <p>where:</p> <p>^a = Multiply the ≤ 15 um equation by the TSP scaling factor ≤ 2.5 um</p> <p>BEF = Bulldozing emission factor (lb/hr)</p> <p>s = Material silt content, % (assumed s = 6.9%)</p> <p>M = Material moisture content, % (assumed M = 7.9%)</p> <p>Days of operation: 6 days/wk*52 wk/yr - 6 holidays = 306 days/yr</p> <p>Hours of operation (dozing/scraping) = 8 hr/day</p> <p>Annual hours of operation: 306 days/yr* 8hr/day = 2,448 hr/yr</p>

<i>Grading - Particulate Matter ≤ 15 um: Table 11.9-1</i>
$GEF = 0.051(S)^{2.0} * (0.031)^a$ <p>where:</p> <p>^a = Multiply the ≤ 15 um equation by the TSP scaling factor ≤ 2.5 um</p> <p>GEF = Grader emission factor (lb/VMT) - Note: VMT = vehicle miles traveled = 0.77 lb/VMT</p> <p>S = Average vehicle speed, km/hr (assume S = 5 mi/hr)</p> <p>Estimated grader miles traveled during the year = 3,672 VMT/yr</p> <p>Days of operation: 6 days/wk*52 wk/yr - 6 holidays = 306 days/yr</p> <p>Hours of operation (dozing/scraping) = 10 hr/day</p> <p>Annual hours of operation: 306 days/yr* 10 hr/day = 3,060 hr/yr</p>

Landfill Activity	PM _{2.5} lb/hr	PM _{2.5} ton/yr
Bulldozing	0.07	0.08
Grading	0.05	0.07

Note:

Actual emissions are assumed to equal potential emissions

Actual Emission Calculations

D23 - Landfill Operations (Fugitive Dust Emissions)

Assumptions:

Emission Factors Equations were derived from AP-42, Section 11.9 - Western Surface Coal Mining, Table 11.9-1, dated 10/98

Bulldozing (Overburden Material) - Particulate Matter $\leq 15 \mu\text{m}$: Table 11.9-1, Overburden
$\text{BEF} = 1.0(s)^{1.5}/(M)^{1.4} * (0.75)^a$ <p>where:</p> <p>^a = Multiply the $\leq 15 \mu\text{m}$ equation by this fraction to determine emissions for scaling $\leq 10 \mu\text{m}$</p> <p>BEF = Bulldozing emission factor (lb/hr)</p> <p>s = Material silt content, % (assumed s = 6.9%)</p> <p>M = Material moisture content, % (assumed M = 7.9%)</p> <p>Days of operation: 6 days/wk*52 wk/yr - 6 holidays = 306 days/yr</p> <p>Hours of operation (dozing/scraping) = 8 hr/day</p> <p>Annual hours of operation: 306 days/yr* 8hr/day = 2,448 hr/yr</p>

Grading - Particulate Matter $\leq 15 \mu\text{m}$: Table 11.9-1
$\text{GEF} = 0.051(S)^{2.0} * (0.60)^a$ <p>where:</p> <p>^a = Multiply the $\leq 15 \mu\text{m}$ equation by this fraction to determine emissions for scaling $\leq 10 \mu\text{m}$</p> <p>GEF = Grader emission factor (lb/VMT) - Note: VMT = vehicle miles traveled = 0.77 lb/VMT</p> <p>S = Average vehicle speed, km/hr (assume S = 5 mi/hr)</p> <p>Estimated grader miles traveled during the year = 3,672 VMT/yr</p> <p>Days of operation: 6 days/wk*52 wk/yr - 6 holidays = 306 days/yr</p> <p>Hours of operation (dozing/scraping) = 10 hr/day</p> <p>Annual hours of operation: 306 days/yr* 10 hr/day = 3,060 hr/yr</p>

Landfill Activity	PM ₁₀ lb/hr	PM ₁₀ ton/yr
Bulldozing	0.47	0.58
Grading	0.92	1.40

Note:

Actual emissions are assumed to equal potential emissions

APPENDIX B – AMBIENT AIR QUALITY IMPACT ANALYSES

MEMORANDUM - DRAFT

DATE: November 20, 2011
TO: Eric Clark, EIT, Permit Engineer, Air Quality Division
FROM: Cheryl Robinson, P.E., Air Quality Engineer/Modeling Analyst, Air Quality Division
PROJECT NUMBER: P-2009.0098, Project 60803 (HHE) and [Project No. TBD, ACLF]
SUBJECT: DEQ Modeling for Hidden Hollow Energy, LLC, Facility ID 001-00214, and
Ada County Landfill, Facility ID 001-00195, Boise, Idaho
Project: Increased H₂S in Landfill Gas combusted in HHE Engines and ACLF Flares

1.0 Summary

In mid-2011, Hidden Hollow Energy, LLC (HHE), a wholly-owned subsidiary of Fortistar, identified a potential issue with previous analyses submitted in support of their current Permit to Construct (PTC) for their landfill gas-to-energy facility located within the boundaries of the Ada County Landfill (ACLF) near Boise, Idaho. Previous analyses for HHE 1 (engine generators 1/2) and HHE 2 (engine generators 3/4) presumed a maximum H₂S concentration of 150 parts per million by volume (ppmv) in the landfill gas (LFG), while grab sample testing of the landfill gas in the early summer of 2011 indicated that the H₂S concentration can be considerably higher. After tuning the landfill gas collection system, maximum H₂S concentrations in the landfill gas are expected to be in the range of 600 ppmv. In late October 2011, HHE proposed installing an H₂S treatment system upstream of the two enclosed flares operated by the landfill and the HHE engine generators.

The landfill gas collection system is currently providing about 2,700 scfm of LFG. More than 60 new extraction wells are scheduled to be installed during December 2011. The wells will be capped until ready to be connected to the existing collection and treatment system. The total landfill gas collected is anticipated to rise to about 3,350 scfm when these new wells are connected during the spring of 2012. Ada County is expected to submit an application at the end of November 2011, requesting a reduction from 4,699 scfm to about 3,350 scfm in the allowable amount of LFG collected in the system that must then be combusted in either the engine generators or the flares before being released to the atmosphere.

The purpose of this modeling evaluation is to conduct significance and (if needed) full impact analyses to:

- 1) Change the allowable SO₂ emission rate for HHE1 and HHE2. Determine the maximum allowable increase in pound-per-hour SO₂ emissions from HHE's four permitted engine generators at LFG collection rates of 3,350 scfm. Conduct atmospheric dispersion modeling to demonstrate that the increase will not cause or significantly contribute to a violation of the 1-hour or annual SO₂ NAAQS, in accordance with Idaho Air Rules Section 203.02 (IDAPA 58.01.01.203.02).
- 2) Change the allowable SO₂ emission rate for ACLF Flare 1 and Flare 2. Determine the ambient impact associated with increasing the H₂S concentration in the landfill gas combusted in the ACLF flares from the values used in the analysis for ACLF permit to construct P-2009.001 to "x" ppmv (where "x" is determined in step 1 above), presuming an LFG collection rate of 3,350 scfm. Conduct atmospheric dispersion modeling to demonstrate that this increase will not cause or significantly contribute to a violation of the 1-hour or annual SO₂ NAAQS, in accordance with Idaho Air Rules Section 203.02 (IDAPA 58.01.01.203.02).
- 3) Characterize the 1-hour SO₂ ambient impacts from operation of the engines and flares prior to installation of an H₂S treatment system, presuming LFG collection rates of 2,700 scfm, 3,350 scfm, and 4,699 scfm, with an H₂S concentration of 600 ppmv. Presume Hidden Hollow Energy 1 (HH1, existing engines 1/2) and Hidden Hollow Energy 2 (HH2, permitted engines 3/4 which have not yet

been constructed) are operating at a maximum feed rate of 600 scfm LFG in each engine, with the remaining LFG flared in Ada County's Flare 1 and Flare 2.

Because of the time-critical nature of this project and its close association with the modeling analyses needed to modify Ada County Landfill's existing permit, DEQ developed a final emissions inventory based on input from both HHE and Ada County Landfill and conducted the dispersion modeling analyses. [DEQ received HHE's concurrence on the emission estimates as part of their review of the draft permit and DEQ modeling report].

The analyses 1) utilized appropriate methods and models; 2) were conducted using reasonably accurate or conservative model parameters and input data; 3) adhered to established DEQ guidelines for new source review dispersion modeling; 4) showed either a) that predicted pollutant concentrations from emissions associated with the facility were below significant contribution levels (SCLs) or other applicable regulatory thresholds; or b) that predicted pollutant concentrations from emissions associated with the facility, when appropriately combined with background concentrations, were below applicable air quality standards at all locations outside of the facility's leased property boundary.

Key assumptions used in the modeling analyses and the impact of these assumptions on the compliance demonstration are shown in Table 1.

TABLE 1. KEY ASSUMPTIONS USED IN MODELING ANALYSES	
Criteria/Assumption/Result	Explanation/Consideration
<p>Hidden Hollow Energy 1 and 2 Maximum SO₂ emissions: From each generator = 1.09 lb/hr From all four generators = 4.36 lb/hr = 19.1 TPY*</p> <p>Based on: H₂S concentration in the landfill gas is 180 ppmv, and LFG feed rate to each engine is 600 scfm.</p> <p>*Assumes generator operations 8,760 hr/year</p>	<p>At these lb/hr emission rates, significant impacts occurred only at receptors located within the portion of the ACLF that is not accessible to the public. The maximum SO₂ ambient impact (design value) from HHE's four generators at any of these receptors was 99.0% of the 1-hour SO₂ NAAQS.</p> <p>At 180 ppmv H₂S, the increase in SO₂ emissions from all four HHE engine generators is: $0.17 \text{ lb/hr} \times 4 \times 8760 \text{ hr/yr} / 2000 = 3 \text{ TPY}$.</p> <p>The modeling threshold of 1.2 TPY is designed to ensure that the ambient impacts from this increase are less than significant. Based on this, and the very low annual impacts (~2.2% of the annual NAAQS) predicted for operating all four engines (2,400 scfm) and Flare 1 at 950 scfm, modeling was not conducted for the annual averaging period.</p>
<p>Ada County Landfill Flares 1 and 2 All LFG is combusted in the flare(s). Based on: H₂S concentration in the landfill gas is 600 ppmv, and LFG feed rate of 3,350 scfm is split evenly between Flare 1 and Flare 2.</p>	<p>If tuning the LFG collection system keeps the H₂S concentrations consistently below 600 ppmv, no further treatment of the LFG is required for ACLF to demonstrate compliance with the 1-hr SO₂ NAAQS for total LFG flow rates up to 3,350 scfm.</p> <p>The maximum ambient impact (design value) for this case is 93.9% of the 1-hour SO₂ NAAQS. Given the stringency of the 1-hr SO₂ NAAQS compared to the annual value, modeling was not conducted for the annual averaging period.</p>
<p>2,400 scfm of LFG is combusted in the four HHE engines, with the remainder combusted in the flare(s). Based on: H₂S concentration in the landfill gas is 600 ppmv, and Total LFG available is 3,350 scfm LFG feed rate to each of four engines is 600 scfm LFG feed rate to Flare 1 is 950 scfm.</p>	<p>If tuning the LFG collection system keeps the H₂S concentrations consistently below 600 ppmv, no further treatment of the LFG is required for ACLF to demonstrate compliance with the 1-hr SO₂ NAAQS for total LFG flow rates up to 3,350 scfm.</p> <p>The maximum ambient impact (design value) for this case is 73.0% of the 1-hour SO₂ NAAQS. Using a full receptor grid for on and off-site impacts, the maximum annual SO₂ impact is 2.2% of the NAAQS</p>

2.0 Background Information

2.1 **Applicable Air Quality Impact Limits and Modeling Requirements**

This section identifies applicable ambient air quality limits and analyses used to demonstrate compliance for this facility located at the Ada County Landfill at 10300 Seamans Gulch Road in the foothills above Boise, Idaho. Approximate UTM coordinates for this parcel are 557.5 km Easting and 4838.6 km Northing, in UTM Zone 11 (Datum NAD83).

2.1.1 *Area Classification*

The Hidden Hollow Energy facility is located within northern Ada County which is designated as an attainment or unclassifiable area for lead (Pb), nitrogen dioxide (NO₂), ozone, particulate matter with an aerodynamic diameter less than or equal to 2.5 micrometers (PM_{2.5}), and sulfur oxides (SO_x). The area is in attainment but is being managed under a maintenance plan for carbon monoxide (CO) and particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM₁₀). There are no Class I areas within 10 kilometers of this location.

2.1.2 *DEQ Modeling Thresholds*

Modeling is typically not required if the changes in estimated criteria pollutant emission rates for a proposed project are below DEQ's modeling thresholds, shown in Table 2. "Case-by-case" thresholds may be used only with prior DEQ approval. The only pollutant of interest for this project is SO₂, and due to the relatively short stacks and the presence of elevated terrain, "Threshold I" values must be used for this project.

Criteria Pollutant	Averaging Period	DEQ Modeling Threshold			
		Threshold I		Threshold II (case-by-case)	
SO ₂	1-hr	0.21	lb/hr	2.5	lb/hr
	Annual	1.2	T/yr	14	T/yr

2.1.3 *Significant and Cumulative NAAQS Impact Analyses*

If estimated maximum pollutant impacts to ambient air from the emissions sources associated with the existing unpermitted facility exceed the significant contribution levels (SCLs) of Section 006 of IDAPA 58.01.01, Rules for the Control of Air Pollution in Idaho (Idaho Air Rules), then a cumulative impact analysis is necessary to demonstrate compliance with National Ambient Air Quality Standards (NAAQS) and Idaho Air Rules Section 203.02 for Permits to Construct and Section 204.02 for Tier II Operating Permits. A cumulative NAAQS impact analysis for attainment area pollutants involves adding ambient impacts from facility-wide emissions, and emissions from any nearby co-contributing sources, to DEQ-approved background concentration values that are appropriate for the criteria pollutant/averaging-time at the facility location and the area of significant impact. The resulting maximum pollutant concentrations in ambient air are then compared to the NAAQS listed in Table 3. The SCLs and the modeled value that must be used for comparison to the NAAQS are also listed in Table 3.

Table 3. APPLICABLE REGULATORY LIMITS				
Pollutant	Averaging Period	Significant Contribution Levels ^c ($\mu\text{g}/\text{m}^3$) ^d	Regulatory Limit ^e ($\mu\text{g}/\text{m}^3$)	Modeled Value Used ^{h, i}
Sulfur Dioxide (SO ₂)	Annual	1.0	80 ^f	Maximum 1 st highest
	1-hour ^o	EPA Interim: 3 ppb ^{n, p} (~7.8 $\mu\text{g}/\text{m}^3$) ^q	0.075 ppm ^{o, p} (~196 $\mu\text{g}/\text{m}^3$) ^q	Maximum 4 th highest ^{o, p}

^c SCLs are defined in Idaho Air Rules Section 006. Class II PM_{2.5} SCLs (signed 9/30/10, 75 FR 64864, October 20, 2010).

^d Micrograms per cubic meter.

^e Federal NAAQS (see 40 CFR 50) in effect as of July 1 of each year are incorporated by reference during the legislative session the following spring. See Idaho Air Rules Section 107.

^f Never expected to be exceeded in any calendar year.

^h Concentration at any modeled receptor.

ⁱ The maximum 1st highest modeled value is always used for significant impact analyses.

^o SO₂ concentration at any modeled receptor when using five consecutive years of meteorological data. Compliance is based on the 3-year average of the annual 99th percentile of 1-hour daily maximum concentrations. EPA Interim SIL, Page memo, dated August 23, 2010.

^p EPA's February 10, 2010 1-hour NO₂ standard (75 FR 6474) and June 22, 2010 1-hour SO₂ standard (75 FR 35520) were incorporated by reference (IBR'd) in Idaho's NSR program when the Idaho Legislature adjourned *sine die* on April 7, 2011.

2.2 Background Concentrations

Background concentrations are used in the cumulative NAAQS impact analyses to account for impacts from sources not explicitly modeled.

Background concentrations were revised for all areas of Idaho by DEQ in March 2003¹ and are currently being updated. Background concentrations in areas where no monitoring data were available are based on monitoring data from areas with similar population density, meteorology, and emissions sources.

Recommended background concentrations for this project are shown in Table 4.

TABLE 4. BACKGROUND CONCENTRATIONS			
Pollutant	Averaging Period	Background ($\mu\text{g}/\text{m}^3$) ^a	Source
Sulfur dioxide (SO ₂)	Annual	2.6	Fargo ND/Moorhead MN monitoring data, 2004-2008, All non-zero values meeting 75% completeness criteria are 0.001 ppm = 2.6 $\mu\text{g}/\text{m}^3$
	1-hour	33.1	Fargo ND/Moorhead MN monitoring data, 2006-2008, 1 st high value plus one standard deviation of values meeting 75% completeness criteria.

^a Micrograms per cubic meter.

¹ Hardy, Rick and Schilling, Kevin. *Background Concentrations for Use in New Source Review Dispersion Modeling*. Memorandum to Mary Anderson, March 14, 2003.

3.0 Modeling Impact Assessment

3.1 Modeling Methodology

This section describes the modeling methods used to demonstrate compliance with applicable air quality standards.

3.1.1 Overview of Analyses

A brief description of parameters used in the modeling analyses is provided in Table 5.

Parameter	Description/Values	Documentation/Addition Description ^a
Model	AERMOD	AERMOD with the PRIME downwash algorithm, version 11103.
Meteorological data	Boise: 2001-2005	National Weather Service surface data and upper air data from the Boise airport. Data processed through AERMET (version 06341) was used for this project.
Terrain	Considered	DEQ used AERMAP (version 11103) to extract building, emission source, and receptor elevations and determine the controlling hill height elevation from a National Elevation Dataset (NED) digital elevation model (DEM) 1- arc-second (30-meter resolution) tiff file. Default rural dispersion was used.
Building downwash	Considered	Building downwash parameters were calculated using the BPIP PRIME algorithm (version 04274).
Receptor Grid	Receptors	Receptor locations were defined in UTM coordinates (NAD83).
	Fenceline Grid	25-meter spacing along the leased property boundary.
	Grid 1	HHE: 50-meter spacing in a square grid out to 1,000 meters (1 kilometer (km)). ACLF: 50-meter spacing in a circular grid out to 2 km.
	Grid 2	HHE: 100-meter spacing in a square grid between 1 km and 2 km.
	Grid 3	HHE: 250--meter spacing in a square grid between 2 km and 3 km. ACLF: 100-meter spacing in a circular grid between 2 km and 3 km.
	Grid 4	HHE: 500--meter spacing in a square grid between 3 km and 4 km. ACLF: 500-meter spacing in a circular grid between 3 km and 4 km.
	Grid 5	HHE: 1000--meter spacing in a square grid between 4 km and 5 km. ACLF: 1000--meter spacing in a circular grid between 4 km and 10 km.
	Grid 6	50-meter spacing in the publicly-accessible area of the Ada County Landfill.

3.1.2 Modeling Protocol and Methodology

Modeling was generally conducted using data described in submissions received from HHE and ACLF and methods described in the *State of Idaho Air Quality Modeling Guideline*.

3.1.3 Model Selection

Idaho Air Rules Section 202.02 requires that estimates of ambient concentrations be based on air quality models specified in 40 CFR 51, Appendix W (Guideline on Air Quality Models). The refined, steady state, multiple source, Gaussian dispersion model AERMOD was promulgated as the replacement model for ISCST3 in December 2005. EPA provided a one-year transition period during which either ISCST3 or AERMOD could be used at the discretion of the permitting agency. AERMOD must be used for all air impact analyses, performed in support of air quality permitting, conducted after November 2006.

AERMOD retains the single straight line trajectory of ISCST3, but includes more advanced algorithms to assess turbulent mixing processes in the planetary boundary layer for both convective and stable stratified layers.

AERMOD offers the following improvements over ISCST3:

- Improved dispersion in the convective boundary layer and the stable boundary layer.
- Improved plume rise and buoyancy calculations.
- Improved treatment of terrain effects on dispersion.
- New vertical profiles of wind, turbulence, and temperature.

AERMOD was used for the submitted analyses for this project.

3.1.4 Meteorological Data

The Hidden Hollow Energy facility is located within the Ada County Landfill, which is about 10.1 miles north-northwest of the National Weather Service station at the Boise airport. For the refined AERMOD analyses, DEQ determined that the existing AERMOD-ready data set based on National Weather Service surface and upper air meteorological data collected from 2001 through 2005 at the Boise airport were the best representative data available at this time. These meteorological data were previously processed through AERSURFACE version 08009 and AERMET version 06341.

3.1.5 Terrain Effects

Terrain effects on dispersion were considered in these site-specific analyses. DEQ used AERMAP (version 11103) to extract building, emission source, and receptor elevations and determine the controlling hill height elevation from a National Elevation Dataset (NED) digital elevation model (DEM) 1 arc-second (30-meter resolution) tiff file. The domain included the area between 43.3528 and 44.0450 degrees latitude and -116.5656 to -115.8947 degrees longitude (NAD83), as shown in Figure 3-1. Default rural dispersion was used.

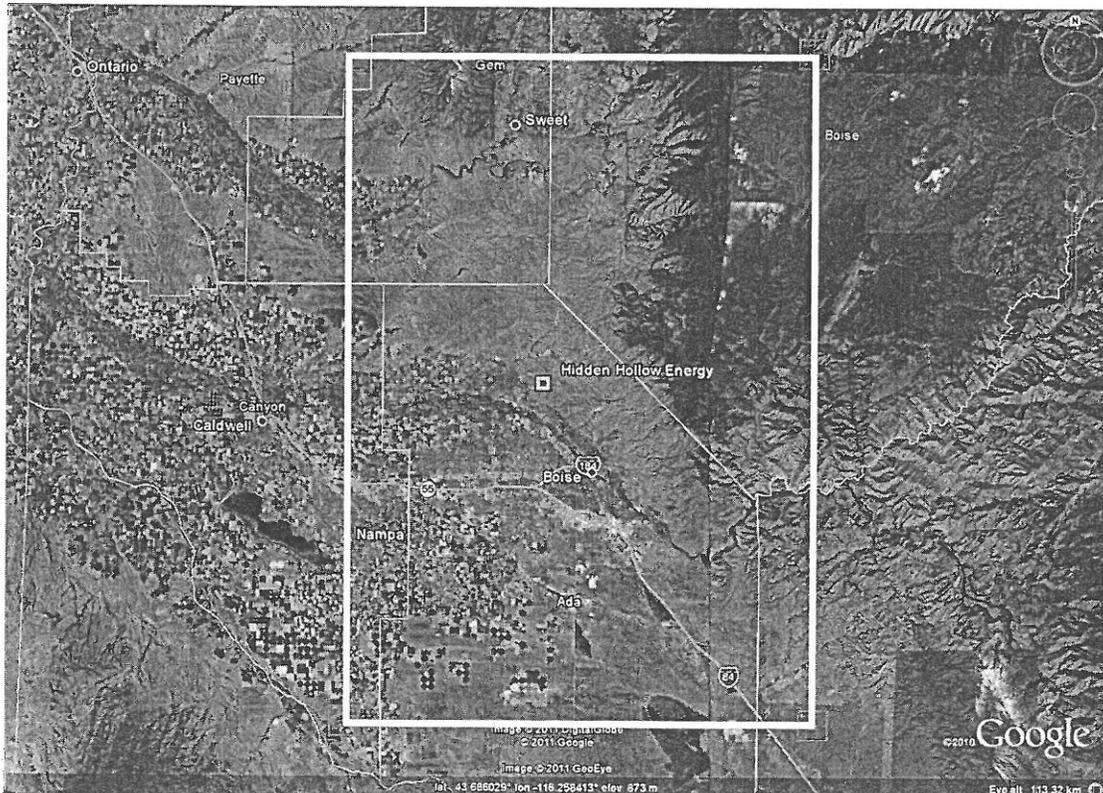


Figure 3-1. HIDDEN HOLLOW ENERGY & ACLF MODELING, EXTRACTED TERRAIN DATA

3.1.6 Facility Layout

The facility layout is shown in Figure 3-2, along with the estimated leased property boundary for all four HHE engine generators.

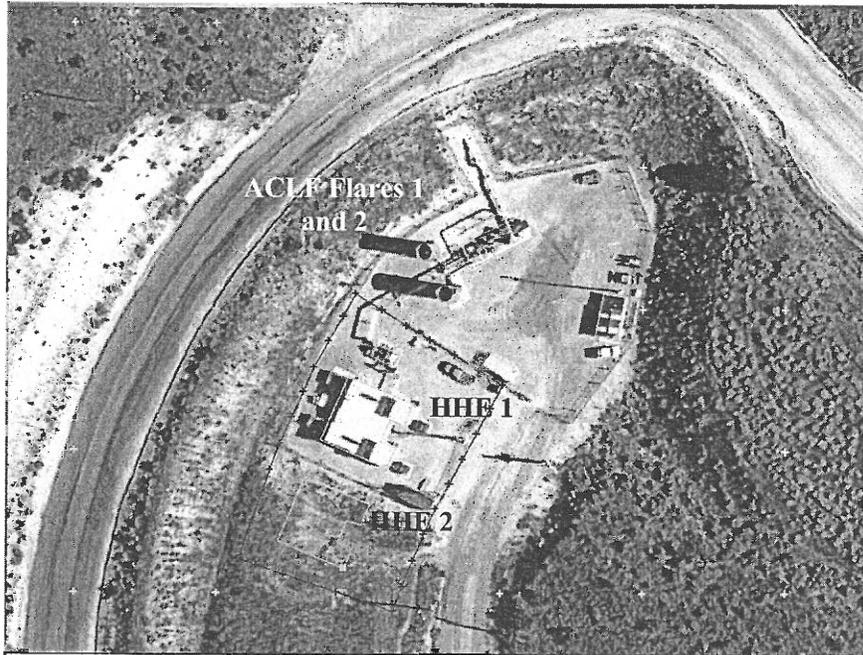


Figure 3-2. HIDDEN HOLLOW ENERGY GENERATORS AND ACLF FLARES

3.1.7 Building Downwash

Plume downwash effects caused by structures present at the facility were accounted for in the submitted modeling analyses. The Building Profile Input Program with Plume Rise Model Enhancements (BPIP-PRIME) was used to calculate direction-specific building dimensions and Good Engineering Practice (GEP) stack height information from building dimensions/configurations and emission release parameters for input to AERMOD. Building parameters are summarized in Table 6.

Table 6. BUILDING PARAMETERS						
Building	Building Height	Base Elevation (m)	UTM Zone 11 (NAD83)		UTM Zone 11 (NAD83)	
			Easting, X (m)	Northing, Y (m)	Easting, X (m)	Northing, Y (m)
HHBLDG1 (HHE 1)	12 ft	873	557482.9	4838604.1	557486.0	4838611.7
	3.66 m		557484.4	4838607.7	557487.5	4838615.5
			557481.8	4838608.7	557476.1	4838620.2
			557483.4	4838612.6	557471.2	4838609.0
HHBLDG2 (HHE 2)	12 ft	873	557475.3	4838586.4	557478.4	4838594.0
	3.66 m		557476.8	4838590.0	557479.9	4838597.8
			557474.2	4838591.0	557468.5	4838602.5
			557475.8	4838594.9	557463.6	4838591.3
CGENCTRL HH Generator Control Pad	12 ft	874	557481.0	4838626.0	557484.0	4838622.0
	3.66 m		557480.0	4838624.0	557485.0	4838624.0
ACLFCNTRL Flare Control Bldg	10 ft	874	557523.5	4838627.0	557521.0	4838634.9
	3.048 m		557524.9	4838634.4	557519.6	4838627.6
CFLRSKID Flare Skid	8 ft	873	557495.0	4838643.0	557509.0	4838645.0
	2.4384 m		557497.0	4838639.0	557507.0	4838649.0

3.1.8 Ambient Air Boundary

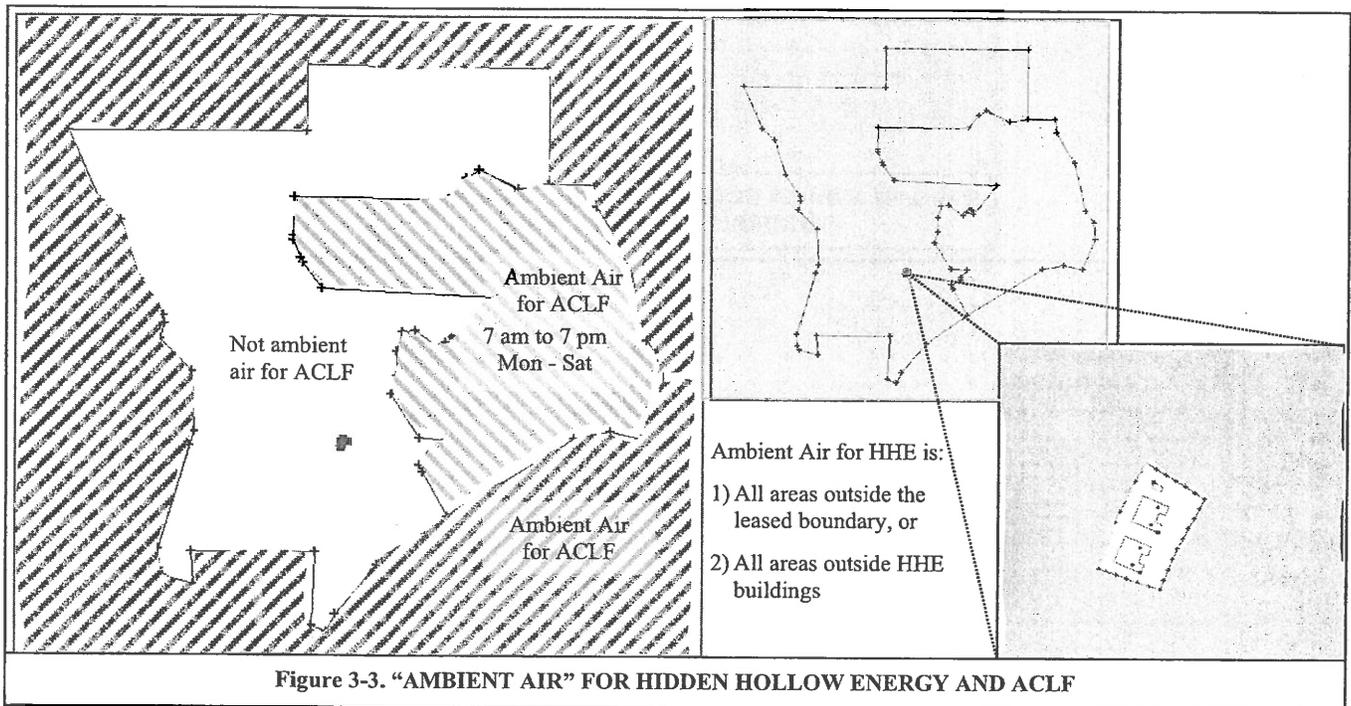
Ambient air is defined in Section 006 of the Idaho Air Rules as “that portion of the atmosphere, external to buildings, to which the general public has access”. The Hidden Hollow Energy facility is located on a small leased parcel within the Ada County Landfill. In situations involving leased land, the EPA has interpreted “ambient air” to mean the following:²

“When two (or more) companies operate separate sources on property owned by one company and leased in part to the other, and the lessor retains control over public access to the entire property and actually maintains a physical barrier around it to preclude public access:

- The air over the entire property (including the leased portion) is not ambient air to the lessor.
- The air over the non-leased portion of the property is ambient air to the lessee.
- The air over the leased portion is ambient air to the lessee unless the lessee undertakes its own separate action to preclude public access.”

For the purposes of air quality permitting, DEQ has determined that Ada County Landfill and Hidden Hollow Energy are two separate facilities. ACLF maintains fencing and signage around the perimeter of the landfill property, allows public access only through the main gate off Seamans Gulch Road, and limits public access within the landfill during operating hours by means of gates, signs, and monitoring by ACLF staff. The landfill is open to the public during the hours from 7:00 a.m. to 6 p.m., Monday through Friday, and Saturdays from 8 a.m. to 6 p.m.

Areas considered “ambient air” for Ada County Landfill and for Hidden Hollow Energy are shown in Figure 3-3. Modeling for Hidden Hollow Energy presumed that ambient air was all areas outside the



² Interpretation of “Ambient Air” in Situations Involving Leased Land Under the Regulations for Prevention of Significant Deterioration (PSD), Memorandum from Steven D. Page, EPA Office of Air Quality Planning and Standards, to Regional Air Division Directors, EPA Regions I-X, June 22, 2007, accessible at <http://www.epa.gov/region7/air/nsr/nsrmemos/leaseair.pdf>

leased property boundary, because HHE maintains a fence around its engine generator buildings except for a space near the flares. Because of the elevated terrain, maximum ambient impacts do not occur at the leased property, but occur up the hill from the HHE facility. It is reasonable to presume that the modeling results would not be different had ambient air been defined as all areas outside of HHE structures.

3.1.9 Receptor Network

The receptor grids used for the significance modeling analyses are summarized in Table 3 and shown graphically in Figure 3-4 for Hidden Hollow Energy and Figure 3-5 for Ada County Landfill. The grid receptor spacing meets the recommended spacing criteria in the *State of Idaho Air Quality Modeling Guideline*. Only receptors with high 1st high ambient impacts greater than or equal to the EPA Interim significant contribution level (SCL) of 3 parts per billion (ppb), equivalent to about 7.8 $\mu\text{g}/\text{m}^3$, were carried forward for the full impact analyses.

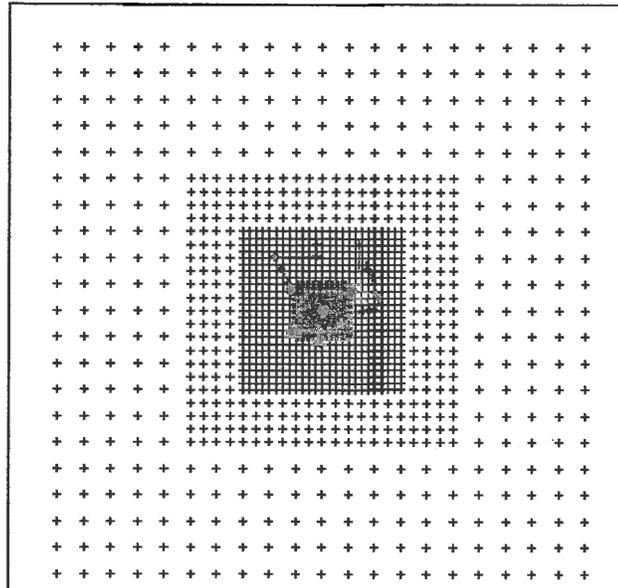


Figure 3-4. HIDDEN HOLLOW ENERGY RECEPTORS (SIGNIFICANCE ANALYSES)

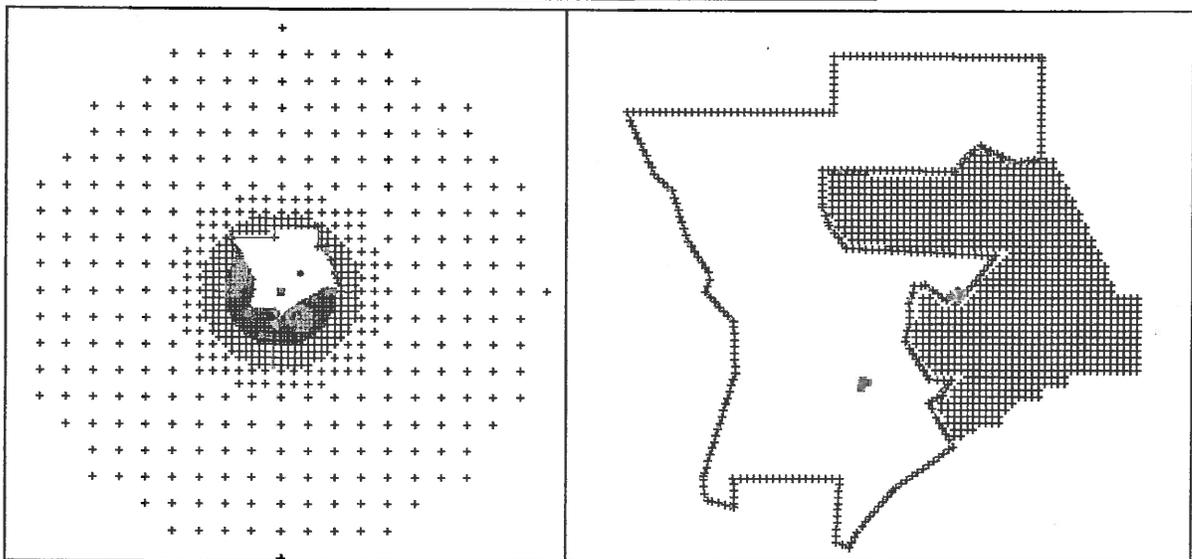


Figure 3-5. ACLF RECEPTORS, "OFFACL" AND "ONACL" (SIGNIFICANCE ANALYSES)

3.2 Emission Release Parameters

The stack parameters for the HHE engine generators and ACLF enclosed flares are shown in Table 7. The exit velocities for the flares are dependent upon the LFG feed rate to each flare. All stacks were modeled as vertical and uncapped.

Table 7. EMISSION RELEASE PARAMETERS

Source ID	Source Description	UTM Zone 11 (NAD83)		Base Elev. (m)	Stack Height (ft) ^b	Stack Temp. (°F) ^c	Stack Diameter (ft)	Exit Velocity (m/s) ^d
		Easting (X, m) ^a	Northing (Y, m) ^a					
HGEN1	HHE1 – Gen1	557482.925	4838615.043	873	14.4 (4.39 m)	898 (754.2 K)	1.2 (0.366 m)	56
HGEN2	HHE1 – Gen1	557479.776	4838607.429	873	14.4 (4.39 m)	898 (754.2 K)	1.2 (0.366 m)	56
HGEN3	HHE2 – Gen3	557475.196	4838597.178	873	14.4 (4.39 m)	898 (754.2 K)	1.2 (0.366 m)	56
HGEN4	HHE2 – Gen4	557472.064	4838589.827	873	14.4 (4.39 m)	898 (754.2 K)	1.2 (0.366 m)	56
FLARE1	ACLF Flare 1	557489.99	4838641.83	873.88	40 (12.2 m)	1455.5 (1064 K)	10 (3.048m)	Varies
FLARE2	ACLF Flare 2	557494.64	4838635.18	872.9	40 (12.2 m)	1448.3 (1060 K)	10 (3.048m)	Varies
CCHIPGEN	ACLF Chipper Generator	558217	4839332	991	6 (1.83 m)	370 (460.9 K)	8-in (0.2033 m)	50
CSCRNGEN	ACLF Screener Generator	558236	4839310	991	6 (1.83 m)	248 (393.2 K)	3-in (0.076 m)	50

^a m = meters ^b ft = feet ^c °F = degrees Fahrenheit, K = Kelvin ^d m/sec = meters per second

3.3 Sulfur Dioxide (SO₂) Emissions Rates

Calculations of SO₂ emissions for previous HHE and ACLF permitting actions were done separately by different consultants, using different assumptions for landfill gas methane concentrations and gas heating values. For the purposes of this project, total SO₂ emissions were calculated based on the total LFG flow rate and H₂S concentration, then apportioned to each source based on the LFG feed rate for that source. This ensures that the emissions rates used for full impact analyses have all been calculated using a consistent set of assumptions.

The difference or “delta” for each HHE engine generator was calculated based on the difference between the previously modeled emission rate of 0.92 lb/hr and the “full impact analysis” emission rate calculated based on the H₂S concentration presuming a 600 scfm LFG feed rate to each engine. Modeled emission rates for the HHE engine generators are shown in Table 8.

Table 8. SO₂ EMISSION RATES – HHE ENGINE GENERATORS

Emissions Unit	Full Impact Analyses				Delta (lb/hr)	Significant Impact Analyses			
	HGEN1 (lb/hr)	HGEN2 (lb/hr)	HGEN3 (lb/hr)	HGEN4 (lb/hr)		HGEN1 (lb/hr)	HGEN2 (lb/hr)	HGEN3 (lb/hr)	HGEN4 (lb/hr)
Base Case	0.92	0.92	0.92	0.92	---	---	---	---	---
H ₂ S = 180 ppmv	1.09	1.09	1.09	1.09	1.09 – 0.92 =	0.17	0.17	0.17	0.17
H ₂ S = 200 ppmv	1.22	1.22	1.22	1.22	1.22 – 0.92 =	0.30	0.30	0.30	0.30
H ₂ S = 600 ppmv	3.65	3.65	3.65	3.65	3.65 – 0.92 =	2.73	2.73	2.73	2.73

The previously modeled emission rates for ACLF Flares 1 and 2 were 0.13 lb/hr and 0.15 lb/hr, respectively. These values represented the estimated SO₂ emission rates when operating with LFG feed rates of 2,320 scfm to Flare 1 and 2,379 scfm to Flare 2. Because 1) the previously modeled emission rates are small compared to the “full impact analysis” emission rates, 2) exhaust parameters for flares may vary considerably depending on the LFG flow rate and quality, and 3) the ambient air boundary for the flares is some distance away, the “full impact analysis” SO₂ emission rates were also used for the significance analyses for the flares. Except for cases run using the current allowable LFG collection rate of 4,699 scfm, LFG flow was split evenly between the two flares. Modeled SO₂ emission rates and exhaust velocities for the flares are shown in Table 9.

H ₂ S Concentration (ppmv)	Total LFG (scfm)	LFG Flow Rate		Exhaust Velocity		Full Impact Analyses		Significant Impact Analyses	
		Flare 1 (scfm)	Flare 2 (scfm)	Flare 1 (m/sec)	Flare 2 (m/sec)	Flare 1 (lb/hr)	Flare 2 (lb/hr)	Flare 1 (lb/hr)	Flare 2 (lb/hr)
Base Case	4,699	2,320	2,379	0.78	0.80	---	---	---	---
H ₂ S = 180 ppmv	3,350	1,675	1,675	0.566	0.564	3.06	3.06	3.06	3.06
H ₂ S = 600 ppmv	2,700	1,350	1,350	0.456	0.455	8.21	8.21	8.21	8.21
H ₂ S = 600 ppmv	3,350	1,675	1,675	0.566	0.564	10.2	10.2	10.2	10.2
H ₂ S = 600 ppmv	4,699	2,320	2,320	0.78	0.80	14.1	14.5	14.1	14.5

For full impact analyses, each of the generators is presumed to use 600 scfm of the available LFG, with any remaining LFG combusted in the flare(s). SO₂ emission rates for operating two or four of the HHE engines at various total LFG flow rates and H₂S concentrations are shown in Table 10.

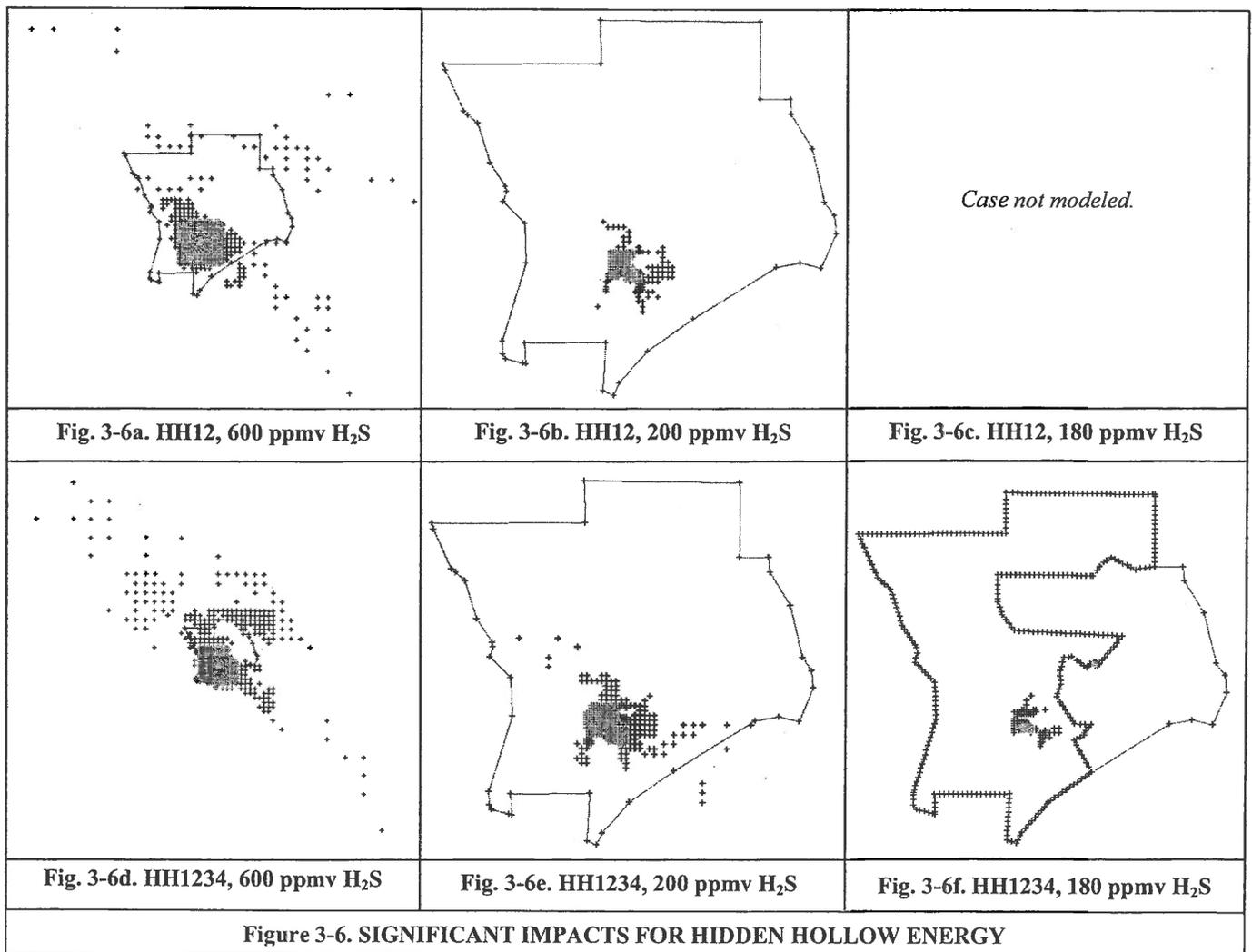
H ₂ S Concentration (ppmv)	Total LFG (scfm)	Total SO ₂ (lb/hr)	HGEN1	HGEN2	HGEN3	HGEN4	Flare1		Flare2	
			(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(m/sec)	(lb/hr)	(m/sec)
Operate HHE Generators 1 and 2 at full load with remaining LFG combusted in the flare(s)										
H ₂ S = 180 ppmv	3,350	6.11	1.09	1.09	---	---	3.92	0.73	---	---
H ₂ S = 200 ppmv	3,350	6.79	1.22	1.22	---	---	4.36	0.73	---	---
H ₂ S = 600 ppmv	2,400	14.59	3.65	3.65	---	---	7.30	0.41	---	---
H ₂ S = 600 ppmv	2,700	16.42	3.65	3.65	---	---	9.12	0.51	---	---
H ₂ S = 600 ppmv	3,350	20.37	3.65	3.65	---	---	13.07	0.73	---	---
H ₂ S = 600 ppmv	4,699	28.57	3.65	3.65	---	---	10.6	0.59	10.6	0.59
Operate HHE Generators 1, 2, 3, 4 at full load with remaining LFG combusted in the flare(s)										
H ₂ S = 180 ppmv	3,350	6.11	1.09	1.09	1.09	1.09	1.73	0.32	---	---
H ₂ S = 200 ppmv	3,350	6.79	1.22	1.22	1.22	1.22	1.93	0.32	---	---
H ₂ S = 600 ppmv	2,400	14.59	3.65	3.65	3.65	3.65	---	---	---	---
H ₂ S = 600 ppmv	2,700	16.42	3.65	3.65	3.65	3.65	1.82	0.10	---	---
H ₂ S = 600 ppmv	3,350	20.37	3.65	3.65	3.65	3.65	5.78	0.32	---	---
H ₂ S = 600 ppmv	4,699	28.57	3.65	3.65	3.65	3.65	6.99	0.39	6.99	0.39
ALCF Non-Emergency Diesel Engine Generators										
CCHIPGEN	---	0.00101	---	---	---	---	---	---	---	---
CSCRNGEN	---	0.00013	---	---	---	---	---	---	---	---

3.4 Results for Significance Analyses

The first step in the modeling analyses for increases in SO₂ emissions from the HHE engines and the ACLF flares is to determine where the high 1st high ambient impacts associated with the increase exceed the EPA interim significant concentration level (SCL) of 3 parts per billion (ppb) or about 7.8 µg/m³. As noted above, only receptors with high 1st high ambient impacts greater than or equal to the EPA Interim significant contribution level (SCL) of 3 parts per billion (ppb)—equivalent to about 7.8 µg/m³—were carried forward for the full impact analyses.

3.4.1 Hidden Hollow Energy Significant Impacts

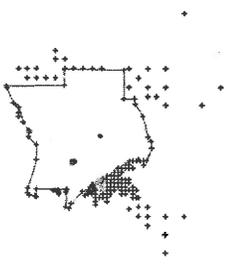
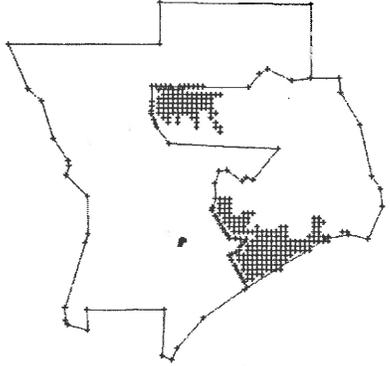
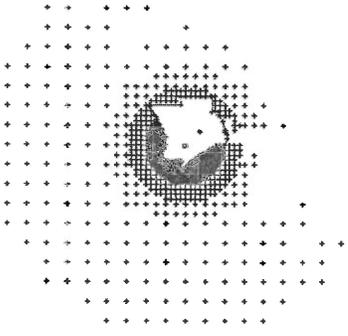
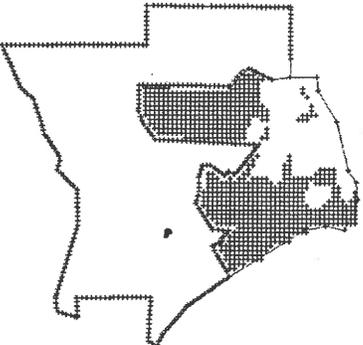
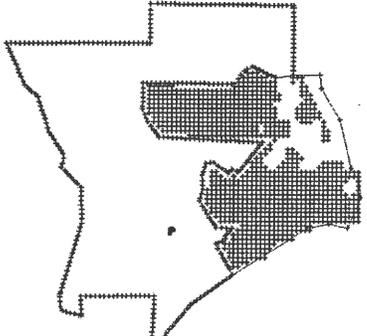
Receptors with significant impacts for operating two (HH12) or four (HH1234) HHE engine generators are shown in Figure 3-6.



3.4.2 ACLF Flare Significant Impacts – Combust All LFG in the Flare(s)

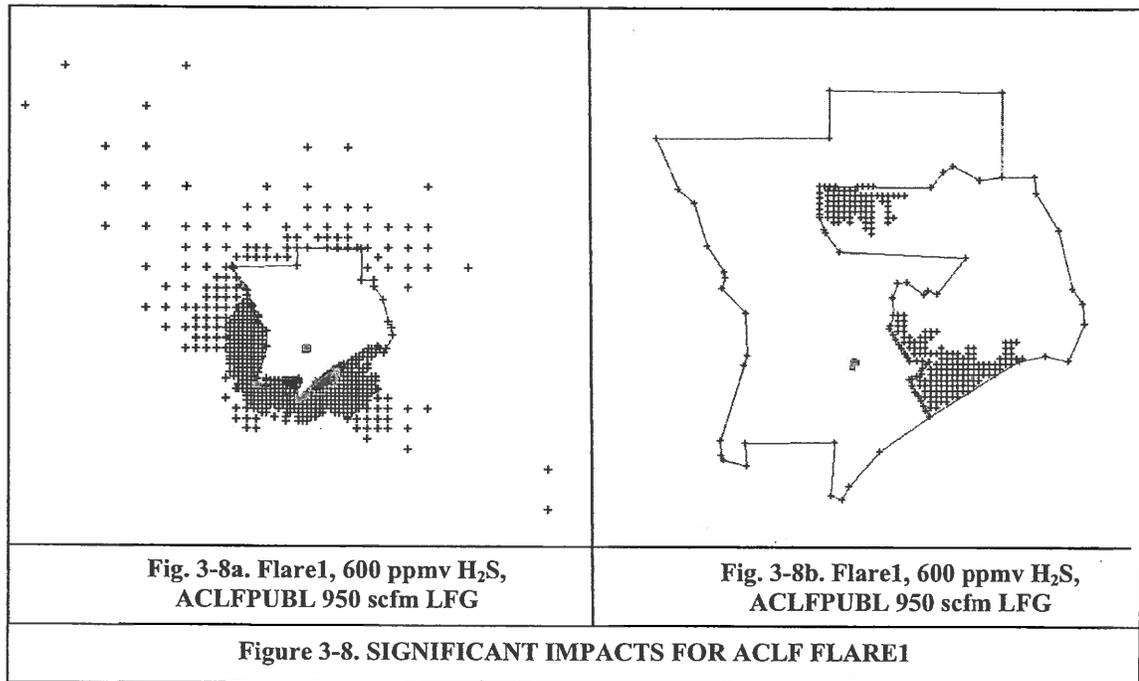
Receptors with significant impacts for combusting all LFG in the ACLF Flares are shown in Figure 3-7. Note that for the flares, modeling for significant impacts was split into two runs: 1) Receptors outside of the ACLF property boundary (OFFACLF), and 2) Receptors located in the areas of the ACLF that are

accessible to the public (ACLPUBL). Flare SO₂ emissions were presumed to impact OFFACLF receptors 24 hours per day, all year. Flare SO₂ emissions were presumed to impact the public areas of the landfill from 7 a.m. to 7 p.m. LST, Monday through Saturday. The average start and end dates of daylight savings time during 2001-2005 were April 4th and October 28th, respectively. AERMOD does not account for the shifts between MST and MDT during the year. Modeled hours for the publicly accessible portion of ACLF were set to 7 a.m. to 7 p.m. from November through March, and 6 a.m. to 6 p.m. from April through October of each year.

	
<p>Fig. 3-7a. Flare12, 180 ppmv H₂S, OFFACLF 3,350 scfm LFG</p>	<p>Fig. 3-7b. Flare12, 180 ppmv H₂S, ACLFPUBL 3,350 scfm LFG</p>
	
<p>Fig. 3-7c. Flare12, 600 ppmv H₂S, OFFACLF 3,350 scfm LFG</p>	<p>Fig. 3-7d. Flare12, 600 ppmv H₂S, ACLFPUBL 3,350 scfm LFG</p>
<p><i>Case not modeled.</i></p>	
<p>Fig. 3-7e. Flare12, 600 ppmv H₂S, OFFACLF 4,699 scfm LFG</p>	<p>Fig. 3-7f. Flare12, 600 ppmv H₂S, ACLFPUBL 4,699 scfm LFG</p>
<p>Figure 3-7. SIGNIFICANT IMPACTS FOR ACLF FLARES</p>	

3.4.3 ACLF Flare Significant Impacts – Running HHE Generators

Receptors with significant impacts when running the HHE engine generators at full capacity with the remaining LFG combusted in the ACLF Flares are shown in Figure 3-8. Note that for the flares, modeling for significant impacts was split into two runs: 1) Receptors outside of the ACLF property boundary (OFFACLF), and 2) Receptors located in the areas of the ACLF that are accessible to the public (ACLPUBL). Flare SO₂ emissions were presumed to impact OFFACLF receptors 24 hours per day, all year. Flare SO₂ emissions were presumed to impact the public areas of the landfill from 7 a.m. to 7 p.m. LST, Monday through Saturday. The average start and end dates of daylight savings time during 2001-2005 were April 4th and October 28th, respectively. AERMOD does not account for the shifts between MST and MDT during the year. Modeled hours for the publicly accessible portion of ACLF were set to 7 a.m. to 7 p.m. from November through March, and 6 a.m. to 6 p.m. from April through October of each year.



3.5 Results for Full Impact Analyses

The determination of co-contributing sources for full impact analyses for HHE's engine generators and for ACLF's flares reflect the definition of "ambient boundary" discussed above. Modeled co-contributing sources for each analysis are summarized in Table 11.

Table 11. CO-CONTRIBUTING SOURCES FOR FULL IMPACT ANALYSES				
Full Impact Analysis for:	Modeled Sources			
	OFFACLF Public Access 8760 hr/yr	ONACLF No Public Access 8760 hr/yr	ONACLF12 No Public Access 7 p.m. – 7 a.m. LST, Mon – Sat and all day Sunday	ACLPUBL12 Public Access 7 a.m. – 7 p.m. LST, Mon - Sat
HGEN12	HHGEN12, Flare(s) and ACLF non-emergency generators	HHGEN12	HHGEN12	HHGEN12, Flare(s) and ACLF non-emergency generators

Full Impact Analysis for:	Modeled Sources			
	OFFACLF Public Access 8760 hr/yr	ONACLF No Public Access 8760 hr/yr	ONACLF12 No Public Access 7 p.m. – 7 a.m. LST, Mon – Sat and all day Sunday	ACLFPUBL12 Public Access 7 a.m. – 7 p.m. LST, Mon - Sat
HGEN1234	HHGEN1234, Flare(s) and ACLF non-emergency generators	HHGEN123	HHGEN123	HHGEN1234, Flare(s) and ACLF non- emergency generators
FLARES	Flares, HGEN12 or HGEN1234 and ACLF non-emergency generators	None	None	Flares, HGEN12 or HGEN1234 and ACLF non- emergency generators

The landfill also has installed two new diesel generators to provide emergency power for the scale and at the hazardous waste handling building. Each of these generators is subject to 40 CFR 60, Subpart IIII (an NSPS), and area source MACT provisions contained in 40 CFR 63 Subpart ZZZZ. These generators are allowed to burn only ultra-low sulfur diesel fuel with maximum 0.0015% sulfur by weight. Modeling for these two sources would be limited to negligible amounts of SO₂ emitted during routine testing and maintenance. Based on the negligible modeled ambient impacts associated with operating the non-emergency generators serving the wood chipper and screening unit, emissions from the emergency generators were not included in the modeling analyses.

Three cases were run to characterize the ambient impacts to personnel working at the landfill if all the LFG is combusted in the flares rather than feeding LFG first to HHE's engine generators and combusting any remaining LFG in the flare(s) prior to installing an H₂S treatment system. The full impact results—using a full receptor grid within the ACLF property boundary—are shown in Table 12.

Total LFG (scfm)	LFG Flow Rate, Each Flare (scfm)	Full Impact Analysis: SO ₂ Emissions, Each Flare (lb/hr)	Stack Height (ft)	Ambient Impact (4 th High) (µg/m ³)	Background Concentration (µg/m ³)	Total Ambient Impact (µg/m ³)	Percent of 196 µg/m ³ NAAQS
2,700	1,350	8.21	40	1,160	33.1	1193	609%
3,350	1,675	10.19	40	1,310	33.1	1343	685%
4,699	2,320 / 2,379	14.1 / 14.5	40	1,580	33.1	1613	823%

Full impact analysis results for increased SO₂ emissions from Hidden Hollow Energy's engine generators and from ACLF's flares are shown in Table 13 and Table 14, respectively.

Table 13. RESULTS OF FULL IMPACT ANALYSES FOR HHE ENGINE GENERATORS

H ₂ S Concentration (ppmv)	Total LFG (scfm)	SO ₂ Emissions from Each Engine (lb/hr)	SO ₂ Modeled Ambient Impact (µg/m ³)				Background Conc. (µg/m ³)	Total Ambient Impact (µg/m ³)				Percent of 196 µg/m ³ NAAQS			
			Off-ACLF*	On-ACLF	On-ACLF12	ACLF-PUBL12*		Off-ACLF*	On-ACLF	On-ACLF12	ACLF-PUBL12*	Off-ACLF*	On-ACLF	On-ACLF12	ACLF-PUBL12*
<i>HHE Base Case</i>															
150	---	0.92	---	---	---	---	---	---	---	---	---	---	---	---	---
<i>Run just the two existing Hidden Hollow Energy engine generators, "OnACLF" means all significant receptors located within the ACLF boundary.</i>															
180	3,350	1.09	Not run	Not run			33.1	Not run	Not run			Not run	Not run		
200	3,350	1.22	Not run	146			33.1	Not run	179			Not run	91%		
600	2,700	3.65	108	437			33.1	141	470			72.0%	240%		
600	3,350	3.65	139	437			33.1	172	470			87.8%	240%		
600	4,699	3.65	188	437			33.1	221	470			113%	240%		
<i>Run all four Hidden Hollow Energy engine generators, "OnACLF" means the significant receptors located where public access is denied 24/7</i>															
180	3,350	1.09	nr	161	nr	nr	33.1	nr	194	nr	nr	nr	99.0%	nr	nr
200 14.4 ft	3,350	1.22	41.9	181	Not run	Not run	33.1	75	214	Not run	Not run	38.3%	109%	Not run	Not run
200 35 ft**	3,350	1.22	Not run	160/ 178	Not run	Not run	33.1	---	211	Not run	Not run	Not run	107%	Not run	Not run
600	2,700	3.65	102	541	Not run	Not run	33.1	135	574	Not run	Not run	68.9%	293%	Not run	Not run
600	3,350	3.65	125	541	Not run	Not run	33.1	158	574	Not run	Not run	80.7%	293%	Not run	Not run
600	4,699	3.65	171	541	179	129	33.1	204	574	212	162	104%	293%	108%	83%

* Includes ACLF co-contributions: Flare(s) and two non-emergency generators in the wood chipping/recycling area of the landfill

** The as-built stack height is 14.4 feet. This case was run to determine the potential reduction in ambient impacts for a 35-foot stack height.
nr = no significant receptors

Table 14. RESULTS OF FULL IMPACT ANALYSES FOR ACLF FLARES

H ₂ S Concentration (ppmv)	Total LFG (scfm)	LFG Flow Rate (scfm)		SO ₂ Emissions (lb/hr)		SO ₂ Modeled Ambient Impact (µg/m ³)		Background Conc. (µg/m ³)	Total Ambient Impact (µg/m ³)		Percent of 196 µg/m ³ NAAQS	
		Flare 1	Flare 2	Flare 1	Flare 2	Off-ACLF*	ACLF-PUBL12*		Off-ACLF*	ACLF-PUBL12*	Off-ACLF*	ACLF-PUBL12*
<i>ACLF Base Case</i>												
46.9	4,699	2,320	2,379	0.13	0.15	---	---	---	---	---	---	---
<i>All LFG Combusted in ACLF Flares</i>												
180	3,350	1,675	1,675	3.06	3.06	45.3	32.5	33.1	78.4	65.6	40.0%	33.5%
600	2,700	1,350	1,350	8.21	8.21	Not run	Not run	33.1	Not run	Not run	Not run	Not run
600	3,350	1,675	1,675	10.2	10.2	151	108	33.1	184.1	141.1	93.9%	72.0%
600	4,699	2,320	2,379	14.1	14.5	259	149	33.1	292.1	182.1	149.0%	92.9%
<i>Run all four Hidden Hollow Energy engine generators (2,400 scfm LFG), with remaining gas routed to ACLF Flare(s)</i>												
600	3,350	950	- 0 -	5.78	- 0 -	56.2	110	33.1	89.3	143.1	45.6%	73.0%
600 ANNUAL	3,350	950	- 0 -	5.78	- 0 -	Full Grid 1.68	Full Grid 1.09	2.6	4.3	3.69	2.2%	1.9%

* Includes ACLF and HHE co-contributions: HHE Engine Generators and two non-emergency generators in the wood chipping/recycling area of the landfill.
nr = no significant receptors

4.0 Conclusions

The ambient air impact analyses demonstrated to DEQ's satisfaction that increasing the SO₂ emissions from each HHE engine generator to 1.09 lb/hr for a total of 4.36 lb/hr from all four permitted engine generators will not cause or significantly contribute to a violation of any SO₂ NAAQS, for total LFG collection rates of 3,350 scfm. This SO₂ emission rate corresponds to an H₂S concentration in the LFG of about 180 ppmv.

The ambient air impact analyses demonstrated to DEQ's satisfaction that SO₂ emissions from combusting all LFG in the ACLF flares will not cause or significantly contribute to a violation of any SO₂ NAAQS, for total LFG collection rates of 3,350 scfm and H₂S concentrations of 600 ppmv or less..

The ambient air impact analyses demonstrated to DEQ's satisfaction that SO₂ emissions from combusting most of the LFG in HHE's engine generators, with remaining LFG combusted in the ACLF flare(s) will not cause or significantly contribute to a violation of any SO₂ NAAQS, for total LFG collection rates of 3,350 scfm and H₂S concentrations of 600 ppmv or less

Appendix F

Manufacturer Specifications

SPECTRUM®

DETROIT DIESEL



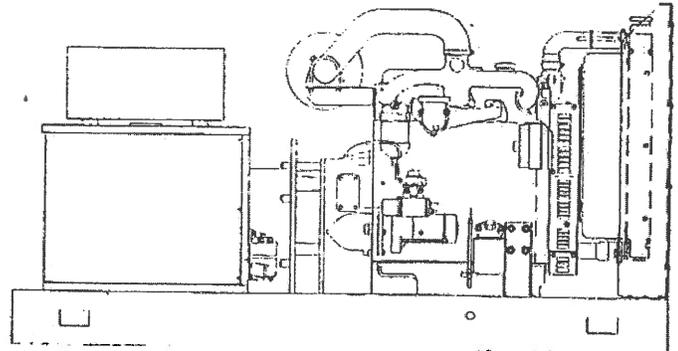
Model: 30DS

Diesel

Standard Features



- Spectrum® product distributors provide one-source responsibility for the generating system and accessories.
- All generator sets and components are prototype tested, factory built, and production tested.
- A one-year limited warranty covers all systems and components. Two-, five-, and ten-year extended warranties are available.
- Generator features:
 - Brushless, rotating-field generator has broadrange reconnectability.
 - A permanent magnet-excited generator (PMG) provides superior short-circuit capability.
- Other features:
 - Controllers are available to meet all applications. See controller features inside.
 - Low coolant level shutdown protects generator set from overheating.
 - Integral vibration isolation eliminates the need for installation of vibration spring isolators under the unit.



Generator Ratings

Model Series	Voltage Code	Voltage	Standby Amps	Phase	Hz	Generator Model	Standby kW/kVA	Prime kW/kVA
30DS60	01	120/240	105	3	60	4P5	35/44	32/40
30DS60	51	139/240	102	3	60	4P5	34/43	31/39
30DS60	51	127/220	112	3	60	4P5	34/43	31/39
30DS60	61	120/240	138	1	60	4P5	33/33	30/30
30DS60	71	277/480	51	3	60	4P5	34/43	31/39
30DS60	71	220/380	67	3	60	4P5	35/44	32/40
30DS60	81	120/208	121	3	60	4P5	35/44	32/40
30DS60	91	347/600	40	3	60	4P5	33/41	30/38
30DS50	01	110/220	89	3	50	4P5	27/34	25/31
30DS50	51	110/190	103	3	50	4P5	27/34	25/31
30DS50	61	110/220	118	1	50	4P5	26/26	24/24
30DS50	71	220/380	51	3	50	4P5	27/34	25/31
30DS50	71	230/400	47	3	50	4P5	26/33	24/30
30DS50	71	240/416	45	3	50	4P5	26/33	23/29
30DS50	81	120/208	90	3	50	4P5	26/33	23/29

RATINGS: Standby ratings are continuous for the duration of any power outage. No overload capacity is specified at this rating. Prime ratings are continuous per BS 5514, DIN 6271, ISO-3046, and IEC 34-1 with 10% overload capacity one hour in twelve hours. All single-phase units are rated at 1.0 power factor. All 3-phase units are rated at 0.8 power factor. Contact the factory for ratings of city water-cooled and remote radiator models. Larger generators may be used to meet special application requirements. Availability is subject to change without notice. The manufacturer of Spectrum products reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever. Contact your local Spectrum products distributor for availability. DERATION: Maximum altitude before generator deration, ft. (m): 500 (152). Altitude deration factor, % per 1000 ft. (305 m): 2.0. Maximum intake air temperature before generator deration, °F (°C): 104 (40). Temperature deration factor, % per 18°F (10°C): 2.5.

Alternator Specifications

Type	4-Pole, Rotating Field
Exciter type	Brushless, Permanent Magnet
Number of leads	12, Reconnectable
Voltage regulator	Solid State, Volts/Hz
Insulation: NEMA MG1-1.66,	
Material	Class H
Temperature rise	130°C, Standby
Bearing, number, type	1, Sealed
Coupling	Flexible Disc
Amortisseur windings	Full
Voltage regulation, no load to full load	±2%
One-step load acceptance per NFPA 110	100% of Rating
Peak motor starting kVA:	(35% dip for 480 V, 60 Hz and 380 V, 50 Hz)
4P5	140 (60Hz), 95 (50Hz)
4P7	195 (60Hz), 135 (50Hz)

- Compliance with NEMA, IEEE, and ANSI standards for temperature rise.
- Sustained short-circuit current up to 300% of rated current for up to 10 seconds.
- Sustained short-circuit capability enabling downstream circuit breakers to trip without collapsing the generator field.
- Self-ventilation and drip-proof construction.
- Vacuum-impregnated windings with fungus-resistant epoxy varnish for dependability and long life.
- Superior voltage waveform from a two-thirds pitch stator and skewed rotor.
- A solid-state, volts-per-hertz voltage regulator with ±2% no-load to full-load regulation.
- A brushless alternator with brushless exciter for excellent load response.

Application Data

Engine

Engine Specifications	60 Hz	50 Hz
Supplier	Detroit Diesel	
Engine, model, type	4.236, 4-Cycle Natural Aspiration	
Cylinder arrangement	4 In-line	
Displacement, cu. in. (L)	236 (3.870)	
Bore and stroke, in. (mm)	3.875 x 5.0 (98.4 x 127)	
Compression ratio	16.0:1	
Piston speed, ft/min. (m/sec.)	1500 (7.62)	1248 (6.35)
Main bearings: number, type	5, Replaceable Insert	
Rated rpm	1800	1500
Max. power at rated rpm, hp (kW)	64.0 (47.7)	56.0 (41.8)
Cylinder head material	Cast Iron	
Crankshaft material	Forged Steel	
Valve material:		
Intake	Carbon Steel	
Exhaust	Chromium Steel	
Governor, type, make/model	Mechanical, Stanadyne/DB2	
Frequency regulation, no load to full load	5%	
Frequency regulation, steady state	±0.5%	
Air cleaner type, all models	Dry, Paper Element	

Exhaust

Exhaust System	60 Hz	50 Hz
Exhaust flow at rated kW, cfm (m ³ /min.)	270 (7.6)	220 (6.2)
Exhaust temperature at rated kW, dry exhaust, °F (°C)	1075 (579)	1060 (571)
Maximum allowable back pressure, in. Hg (kPa)	3 (10.2)	
Exhaust outlet size at hookup, in. (mm)	2.50 O.D. (63.5)	

Engine Electrical

Engine Electrical System	60 Hz	50 Hz
Battery charging alternator:		
Ground (negative/positive)	Negative	
Volts (DC)	12	
Ampere rating	66	
Starter motor rated voltage (DC)	12	
Recommended battery cold cranking amps (CCA) rating for 0°F	800	
Quantity of batteries	1	
Battery voltage (DC)	12	
Rolling current at 32°F	-	

Fuel

Fuel System	60 Hz	50 Hz
Fuel supply line, min. ID, in. (mm)	0.25 (6)	
Fuel return line, min. ID, in. (mm)	0.25 (6)	
Max. lift, engine-driven fuel pump, ft. (m)	6.0 (1.8)	
Max. fuel flow, g/h (L/h)	4.7 (17.8)	4.3 (16.1)
Fuel prime pump	Manual	
Fuel filter	Primary and Secondary	
Recommended fuel	#2 Diesel, min. 45 Cetane	

Lubrication

Lubricating System	60 Hz	50 Hz
Type	Full Pressure	
Oil pan capacity, qts. (L)	7.5 (7.1)	
Oil pan capacity with filter, qts. (L)	8.6 (8.1)	
Oil filter, quantity, type	1, Cartridge	
Oil cooler	-	

Application Data

Cooling (Standard Radiator)

Cooling System	60 Hz	50 Hz
Ambient temperature °F (°C)	122 (50)	
Engine jacket water capacity, gal. (L)	2.5 (9.5)	
Radiator system capacity, including engine, gal. (L)	3.6 (13.6)	
Engine jacket water flow, gpm (Lpm)	24 (91)	20 (76)
Heat rejected to cooling water at rated kW, dry exhaust Btu/min.	1400	1040
Water pump type	Centrifugal	
Fan diameter, including blades, in. (mm)	19.0 (482.6)	
Fan hp (kW)	3.5 (2.6)	2.0 (1.5)
Max. restriction of cooling air, intake and discharge side of rad., in. H ₂ O (in. Hg)	0.5 (0.037)	

Cooling (Optional Systems)

Remote Radiator System	60 Hz	50 Hz
Exhaust manifold type	Dry	
Connection sizes:		
Water inlet, in. (mm)	1.88 (48)	
Water outlet, in. (mm)	1.50 (38)	
Remote radiator:		
Make	Modine	
Model	M2VR2P1.5	
Mounting	Vertical	
Discharge	Horizontal	
Fan motor: phase, hp (kW)	3, 1.5, (1.1)	
Radiator capacity, gal. (L)	3.5 (13.2)	
Static head allowable above engine, ft. (m)	10.7 (3.8)	7.5 (2.3)
Tank top (inlet), in.	1.5 NPT	
Bottom tank (outlet), in.	1.5 NPT	
Dry weight, lb. (kg)	320 (145)	

City Water Cooling System	60 Hz	50 Hz
Exhaust manifold type	Dry	
System capacity, gal. (L)	2.9 (10.9)	
City water consumption,* gpm (Lpm) at 50°F (10°C)	2.3 (8.7)	1.9 (7.2)
Connection sizes:		
Water inlet, in.	1/2 NPT	
Water outlet, in.	1/2 NPT	

* Data based on Thermal Transfer Products B-702-B4 heat exchanger with thermostatically controlled water-saver valve, electric solenoid valve, and surge tank.

Operation Requirements

Air Requirements	60 Hz	50 Hz
Radiator-cooled cooling air, cfm (m ³ /min.)	5500 (156)	4100 (116)
Cooling air required for gen. set when equipped with CWC or remote radiator, based on 25°F (14°C) rise and ambient temp. of 85°F (29°C), cfm (m ³ /min.)	2000 (56.6)	1400 (39.6)
Combustion air, cfm (m ³ /min.)	102 (2.9)	88 (2.5)
Heat rejected to ambient air:		
Engine BTU/min.	520	380
Generator BTU/min.	320	220

Fuel Consumption	60 Hz	50 Hz
Diesel, gph (Lph) at % load		
100%	3.0 (11.2)	2.2 (8.3)
75%	2.3 (8.5)	1.7 (6.4)
50%	1.7 (6.3)	1.3 (4.9)
25%	1.2 (4.5)	0.9 (3.4)

Controllers

Standard Controller and Features



- Type: 16-light microprocessor (NFPA 110, level 1)
 - Power source, with circuit protection: 12-volt DC
 - Panel lamps (2)
 - Analog Meters:
 - AC meters, 2.5 in. (64 mm) 2% full-scale accuracy on voltmeter and ammeter, 0.5% full-scale accuracy on frequency meter
 - DC meters, 2 in. (51 mm), 2% full-scale accuracy (volts, engine water temperature, oil pressure)
 - Running time meter
 - Switches and Controls:
 - Alarm horn and silencing switch
 - Cyclic cranking
 - Engine cooldown timer, 5-minute
 - Front-mounted voltage-adjusting rheostat ±5%
 - Lamp test switch
 - Local emergency stop button switch (optional)
 - Meter phase selector switch, 7 position
 - Overvoltage protection shutdown
 - Prime power mode
 - Run/off-reset/auto switch (engine start), local/remote two-wire
 - Fault and Condition Lamps:
 - Air damper (red) (200-1600 kW diesel only)
 - Auxiliary fault (red)
 - Auxiliary prealarm (yellow)*
 - Battery charger fault (red)*
 - Emergency stop (red)*
 - Generator switch not in auto (red)
 - High engine temperature safety shutdown (red)
 - Low battery voltage (red)*
 - Low coolant level shutdown (auxiliary)
 - Low fuel (red)*
 - Low oil pressure safety shutdown (red)
 - Low water temperature (red)*
 - Overcrank safety shutdown (red)
 - Overspeed safety shutdown (red)
 - Prealarm high engine temperature (yellow)*
 - Prealarm low oil pressure (yellow)*
 - System ready (green)
- * Requires optional kit or user-provided device for lamp to function.

Optional Controllers

- Engine gauge box for paralleling controller (switchgear)
 - Manual controller
 - Manual paralleling microprocessor controller
 - Oversized meterbox controller
 - 7-light controller (NFPA 110, level 2)
- (For optional controller features, see controller spec sheet.)



Accessories

Enclosed Unit

- Exhaust Silencer, Critical or Industrial
- Silencer Mounting Kit for Housing
- Sound Shield Enclosure
- Tail Pipe and Rain Cap Kit
- Weather Housing

Open Unit

- Exhaust Silencer, Critical or Industrial
- Flexible Exhaust Connector, Stainless Steel

Cooling System

- Block Heater
- City Water Cooling
- Radiator Duct Flange
- Remote Radiator Cooling

Fuel System

- Auxiliary Fuel Pump
- Day Tanks
- Flexible Fuel Lines
- Fuel Pressure Gauge
- Subbase Fuel Tanks

Electrical System

- Battery
- Battery Charger, Equalize/Float Type
- Battery Charger, Trickle Type
- Battery Heater
- Battery Rack and Cables

Engine and Generator

- Air Cleaner, Heavy Duty
- Air Cleaner Restriction Indicator
- Bus Bar Kits
- CSA Certification
- Electronic Isochronous Governor
- Generator Strip Heater
- Line Circuit Breaker
- Line Circuit Breaker with Shunt Trip
- NFPA 110 Literature
- Oil Drain Extension with Valve Kit
- Optional Generators
- Rated Power Factor Testing
- Safeguard Breaker
- Voltage Regulation, 1%
- Voltage Regulator Sensing, Three-Phase

Paralleling System

- Load-Sharing Module
- Reactive Droop Compensator
- Remote Speed Adjust Potentiometer/Electronic Governor
- Voltage Adjust Potentiometer
- Voltage Regulator Relocation Kit

Maintenance

- General Maintenance Literature Kit
- Maintenance Kit (includes air, oil, and fuel filters)
- Overhaul Literature Kit

Controller (Standard Controller)

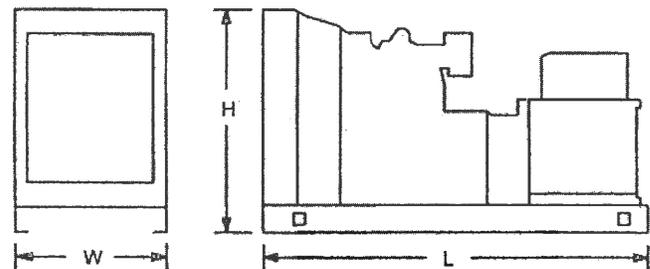
- Common Failure Relay Kit
- Customer Connection Kit
- Dry Contact Kit (Isolated Alarm)
- Extension Wiring Harness for Remote Mounting of Controller
- FASTCHECK® Diagnostic Fault Detector
- Prealarm Sender Kit (NFPA 110)
- Remote Annunciator Panel
- Remote Audio/Visual Alarm Panel
- Remote Emergency Stop Kit
- Run Relay Kit
- Tachometer Kit/Oversize Meterbox
- Wattmeter Kit/Oversize Meterbox

Miscellaneous Accessories

- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____

WEIGHTS AND DIMENSIONS

Overall Size, L x W x H, in. (mm): 82.00 x 29.00 x 43.40
 (2083 x 737 x 1102)
 Weight (Radiator Model), wet lb. (kg): 1615 (733)



NOTE: This drawing is provided for reference only and should not be used for planning installation. Contact your local distributor for more detailed information.

DISTRIBUTED BY:

Converting SCFM to ACFM

$$ACFM = SCFM * (P_{std} / P_{act}) * (T_{act} / T_{std})$$

Where

ACFM = Actual cubic feet per minute

SCFM = Standard cubic feet per minute

Pstd = Standard absolute air pressure (psia)

Pact = Absolute pressure at the actual level (psia)

Tact = Actual ambient air temperature (°R)

Tstd = Standard temperature (°R)

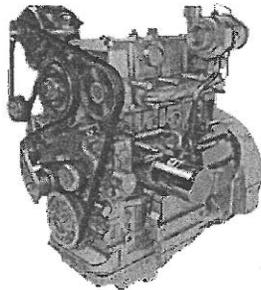
Generator 3 - Detroit Diesel

SCFM =	270.00	Maximum Flow	
SCFM =	135.00	50% load	
Pstd =	14.7	psia	
Pact =	13.42	psia (3,000 ft elevation)	
Tact =	1075	°F (exhaust)	1535 °R
Tstd =	77	°F	537 °R

GEN3 ACFM 423

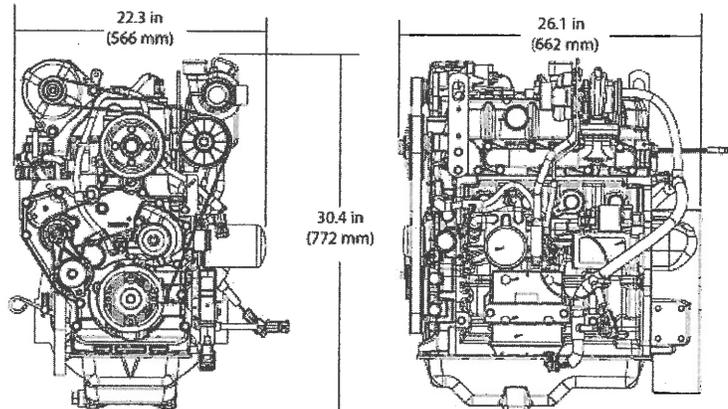
PowerTech E 4024H Diesel Engine

Generator Drive Engine Specifications



4024H shown

Dimensions



Certifications

CARB
EPA Tier 3

General data

Model	4024HF285	Aspiration	Turbocharged and air-to-air aftercooled
Number of cylinders	4	Length - mm (in)	662 (26.1)
Displacement - L (cu in)	2.4 (146)	Width - mm (in)	566 (22.3)
Bore and Stroke-- mm (in)	86 x 105 (3.39 x 4.13)	Height-- mm (in)	772 (30.4)
Compression Ratio	18.2:1	Weight, dry-- kg (lb)	251 (553)
Engine Type	In-line, 4-Cycle		

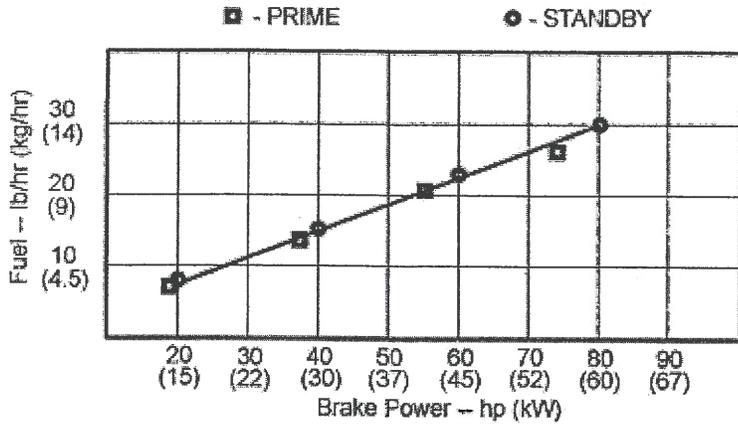
Performance data

Prime power at 60 Hz (1800 rpm)	55 kW (74 hp)
Standby power at 60 Hz (1800 rpm)	60 kW (80 hp)

The prime power gen-set engine rating is the nominal power an engine is capable of delivering with a variable load for an unlimited number of hours per year with normal maintenance intervals observed. This rating incorporates a 10% overload capability which is available for up to 2 hours at a time. Operating time between 100% and 110% of the prime power rating is not to exceed 8% of the total engine operating time. This rating conforms to ISO 8528-1 "prime power (PRP)". The permissible average power for the prime or PRP rating is not to exceed 70% of rated prime power when calculated per ISO 8528-1.

The standby gen-set engine rating is the nominal engine power available at varying load factors for up to 200 hours per year with normal maintenance intervals observed. No overload capability is available for this rating. This rating conforms to ISO 8528-1 "Emergency Standby Power (ESP)". The permissible average power for the standby or ESP rating is calculated per ISO 8528-1.

Performance curve



Performance data

Hz (rpm)	Generator efficiency %	Rated fan power		Power factor	Calculated generator set output			
		kW	hp		Prime		Standby	
					kWe	kVA	kWe	kVA
60 (1800)	88-92	3.6	4.8	0.8	45-47	56-59	50-52	63-65

Features and benefits

2-Valve Cylinder Head

- U-flow head design provides excellent breathing from a lower-cost 2-valve cylinder head

Electronic Unit Pump (EUP) Fuel System

- Regulated rated speed flexibility and improved cold-start and warm-up control

Fixed Geometry Turbocharger

- Fixed geometry turbochargers are precisely matched to the power level and application

Air-to-Air Aftercooled

- This is the most efficient method of cooling intake air to help reduce engine emissions while maintaining low-speed torque, transient response time, and peak torque. It enables an engine to meet emissions regulations with better fuel economy and the lowest installed costs

John Deere Electronic Engine Controls

- Electronic engine controls monitor critical engine functions, providing warning and/or shutdown to prevent costly engine repairs and eliminate the need for add-on governing components, all lowering total installed costs

Compact Size

- Mounting points are the same as previous engine models

Engine Performance

- Block loading capability provided with standard electronic governor control

Additional Features

- Self-adjusting poly-vee fan drive
- Forged-steel connecting rods
- Either-side service
- 500-hour oil change
- Gear driven auxiliary drive
- Glow plugs
- Optional balancer shafts

John Deere Power Systems
3801 W. Ridgeway Ave.
PO Box 5100
Waterloo, IA 50704-5100
Phone: 1-800-533-6446
Fax: 319.292.5075

John Deere Power Systems
Usine de Saran
La Foulonnerie - B.P. 11.13
45401 Fleury les Aubrais Cedex
France
Phone: 33.2.38.82.61.19
Fax: 33.2.38.82.60.00

All values at rated speed and power with standard options unless otherwise noted. Specifications and design subject to change without notice.

60 kW John Deere Engine

Model: 4014 HF 285

Serial: 2325625

Tier III

Manufacture Date: 11/2010

Stack Diameter: 2.5"

Stack Height: 70"

From conversation with Frank Grover with EC Power in Boise, Idaho on 9/7/2011:

- Flow = 549 scfm
- Exhaust Temp = 896 F
- Fuel usage = 4.73 gal/hr

	Range	Resolution
CO	999 ppm	1 ppm
H ₂ S	499 ppm	1 ppm
NO ₂	99.9 ppm	0.1 ppm
SO ₂	99.9 ppm	0.1 ppm
O ₂	30.0 %	0.1 %
Cl ₂	50.0 ppm	0.1 ppm
NO*	499 ppm	1 ppm
NH ₃ *	200 ppm	1 ppm
HCN	30.0 ppm	0.1 ppm
HCl*	30.0 ppm	0.1 ppm
PH ₃	1.00 ppm	0.01 ppm
H ₂	999 ppm	1 ppm
O ₃	1.00 ppm	0.01 ppm
ClO ₂	1.00 ppm	0.01 ppm
Comb (%LEL)	100%LEL	1% LEL
Comb (%vol)	5.0% Vol	0.1% Vol
Comb (ppm)	10,000 ppm	50 ppm

* bias sensor

TEMPERATURE AND HUMIDITY RANGE:

Operating Temperature Range:

-20° to +50° C (-4° to 122° F), typical toxic/oxygen
0° to +40° C (32° to 104° F), for LEL sensor only
per C22.2 No. 152

Operating Humidity Range:

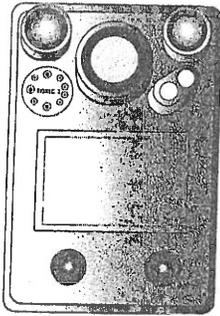
15 – 95% RH, typical
0 – 99% RH, intermittent, non-condensing

Storage Temperature Range:

0° to +20° C (32° to 68° F)

REPLACEMENT PARTS LIST

ITEM.	PART NO.	DESCRIPTION
1.	17102484	iTX Main PCB Version 2.X (17088667 for Version 1.X)
2.	17105255	iTX Sensor PCB Version 2.X (17090473 for Version 1.X)
3.	17102526	iTX Interface PCB Version 2.X (17090481 for Version 1.X)
5.	17104266	iTX Keypad Version 2.X (17091307 for Version 1.X)
6.	17096389	iTX Case top assembly
7.	17096082	iTX Case bottom
8.	17091083	iTX Case gasket
10	17098450	iTX Battery cover assembly
11	17091901	Battery cover gasket
12	17092651	Battery insulator
13.	17092693	Screw retainer
14	17095332	Battery cover screws
18	17092198	iTX Chassis
19	17091620	Pump contact module
20	17091869	Pump contact gasket
21	17091588	Pump contact clip
22	17096371	iTX Water barrier kit
27	17092685	Screw, captive, #4x1.125
28	17086935	Screw, 2-56 x 0.31
29	17050453	Screw, 2-56x .188
30	17052558	Screw, 2-28 x .250
32	17049876	Wrist strap
35	17092776	RFI screen
36	17092750	Conductive adhesive
37	17084542	LCD holder
38	17084673	LCDisplay
39	17092743	Insulator pad
40	17099860	i-Button® insulator
41	17028374	External alarm jack
42	17029273	Alarm jack plug
43	17050277	O-ring .250 ID



CHANGING GAS SENSORS

iTX sensors are designed to be changed and replaced by the user in the field without the need for factory service. To replace a sensor in the iTX remove the battery from the instrument as described above. Remove the three screws that hold the instrument case top in place and remove the case top. Be careful not to tear the cable that connects the keypad to the display board. Grasp the sensor firmly and remove from the instrument. Plug the new sensor into the open sensor port and press firmly into place. Some toxic gas sensors are shipped with a shorting wire in place on the bottom of the sensor identification board. This shorting wire must be removed prior to installing the sensor in the instrument in order for the sensor to function properly. Once the sensor has been installed, replace the instrument case top and battery pack. New sensors installed in the instrument will be recognized automatically. If a new sensor type was installed in the instrument, the display will prompt the user to calibrate the instrument before further use. After installing any of the bias sensors (NH₃, NO, HCl), you must turn on the instrument so the iTX identifies that a bias sensor is installed and recognizes the need to supply a bias voltage. Then turn off the unit and put it on charge for 24 to 48 hours to allow the sensor to stabilize before calibration. The iTX should be calibrated prior to use to ensure accuracy after a sensor has been changed in the unit.

TOXIC SENSOR CROSS SENSITIVITY CHART

Industrial Scientific has designed the iTX to respond as specifically as possible to the target toxic gas. Realistically, total specificity cannot be achieved in all cases. The following chart demonstrates typical cross sensitivity responses for a given sensor when exposed to a different gas.

iTX SENSOR CROSS INTERFERENCE TABLE

Sensor	CO	H ₂ S	SO ₂	NO ₂	Cl ₂	ClO ₂	HCN	HCl	PH ₃	NO	H ₂
Gas											
CO	100	2	1	-5	0	0	0	1000	0	0	1
H ₂ S	10	100	1	-8	-3	0	400	25	3	35	20
SO ₂	0	10	100	0	0	0		0		0	0
NO ₂	-20	-20	-100	100	12		-12			30	0
Cl ₂	-10	-20	-35	-100	100	0	-20	20	-10	0	0
ClO ₂					20	100					
HCN	15	50	50	1	0	0	100	5	1	0	30
HCl	3	0	0	0	2	0	0	100	0	15	0
PH ₃						100	0	300	100		
NO	10	1	1	0						100	30
H ₂	60	0.05	0.5	0	0	0	0	0	0	0	100

The table above reflects the percentage response provided by the sensor listed across the top of the chart when exposed to a known concentration of the target gas listed in the left hand column.

SPECIFICATIONS

- SIZE:** 4.75" x 3.19" x 1.68" (121mm x 81mm x 43mm)
- WEIGHT:** 18.5oz (with Li-ion battery pack)
524.5 grams (with Li-ion battery pack)
- DISPLAY:** 128 X 64 Graphic Dot-Matrix LCD with backlighting for low light conditions. Display protected by clear lens. RFI/EMI shielding screen mounted over display area.
- RUN TIME:** Run times are specified under the following conditions: A fully charged Li-ion pack / new alkaline pack; all sensors installed; room temperature; and no alarms activated.
- Alkaline batteries, without parasitic pump 12hr
Alkaline batteries, with parasitic pump 6hr
Lithium-ion battery, without parasitic pump 24hr
Lithium-ion battery, with parasitic pump 15hr

Appendix G
Regulatory Analysis(Generators 1 and 2)

*Title 40: Protection of Environment
Part 63, Subpart ZZZZ—National Emissions Standards for Hazardous Air Pollutants for
Stationary Reciprocating Internal Combustion Engines*

§ 63.6580 What is the purpose of subpart ZZZZ?

Subpart ZZZZ establishes national emission limitations and operating limitations for hazardous air pollutants (HAP) emitted from stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and operating limitations.

§ 63.6585 Am I subject to this subpart?

You are subject to this subpart if you own or operate a stationary RICE at a major or area source of HAP emissions, except if the stationary RICE is being tested at a stationary RICE test cell/stand.

(a) A stationary RICE is any internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work and which is not mobile. Stationary RICE differ from mobile RICE in that a stationary RICE is not a non-road engine as defined at 40 CFR 1068.30, and is not used to propel a motor vehicle or a vehicle used solely for competition.

(b) A major source of HAP emissions is a plant site that emits or has the potential to emit any single HAP at a rate of 10 tons (9.07 megagrams) or more per year or any combination of HAP at a rate of 25 tons (22.68 megagrams) or more per year, except that for oil and gas production facilities, a major source of HAP emissions is determined for each surface site.

(c) An area source of HAP emissions is a source that is not a major source.

The facility maintains and operates two non-emergency internal combustion engines. A Caterpillar D398 with an engine power rating of 650 bhp, installed prior to June 12, 2006. A Deutz with an engine power rating of 106 bhp, installed prior to June 12, 2006. This facility is classified as an area source of HAP emissions defined as potential-to-emit (PTE) 10 tons per year (tpy) or less for any single HAP or PTE less than 25 tpy for total HAPs.

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

(e) If you are an owner or operator of a stationary RICE used for national security purposes, you may be eligible to request an exemption from the requirements of this subpart as described in 40 CFR part 1068, subpart C.

§ 63.6590 What parts of my plant does this subpart cover?

This subpart applies to each affected source.

(a) Affected source. An affected source is any existing, new, or reconstructed stationary RICE located at a major or area source of HAP emissions, excluding stationary RICE being tested at a stationary RICE test cell/stand.

(1) *Existing stationary RICE.*

(i) For stationary RICE with a site rating of more than 500 brake horsepower (HP) located at a major source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before December 19, 2002.

(ii) For stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before June 12, 2006.

(iii) For stationary RICE located at an area source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before June 12, 2006.

§ 63.6595 *When do I have to comply with this subpart?*

(a) *Affected sources.* (1) If you have an existing stationary RICE, excluding existing non-emergency CI stationary RICE, with a site rating of more than 500 brake HP located at a major source of HAP emissions, you must comply with the applicable emission limitations and operating limitations no later than June 15, 2007. If you have an existing non-emergency CI stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, an existing stationary CI RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions, or an existing stationary CI RICE located at an area source of HAP emissions, you must comply with the applicable emission limitations and operating limitations no later than May 3, 2013. If you have an existing stationary SI RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions, or an existing stationary SI RICE located at an area source of HAP emissions, you must comply with the applicable emission limitations and operating limitations no later than October 19, 2013.

§ 63.6603 *What emission limitations and operating limitations must I meet if I own or operate an existing stationary RICE located at an area source of HAP emissions?*

Compliance with the numerical emission limitations established in this subpart is based on the results of testing the average of three 1-hour runs using the testing requirements and procedures in §63.6620 and Table 4 to this subpart.

(a) If you own or operate an existing stationary RICE located at an area source of HAP emissions, you must comply with the requirements in Table 2d to this subpart and the operating limitations in Table 1b and Table 2b to this subpart that apply to you.

Non-Emergency CI RICE (\leq 300 hp)^a:

- Change oil and filter every 1,000 hr of operation or annually, whichever comes first.^b
- Inspect air cleaner every 1,000 hr of operation or annually, whichever comes first.
- Inspect all hoses and belts every 500 hr of operation or annually, whichever comes first, and replace as necessary.

^a Deutz power screen generator, engine rating of 106 bhp

^b Sources have the option to utilize an oil analysis program as described in §63.6625(i) in order to extend the specified oil change requirement in Table 2d of this subpart.

Non-Emergency CI RICE ($>$ 500 hp)^a:

- Limit concentration of CO in the stationary RICE exhaust to 23 ppmvd at 15% O₂; or
- Reduce CO emissions by 70 percent or more.

^a Caterpillar wood chipper generator, engine rating of 650 bhp

§ 63.6604 *What fuel requirements must I meet if I own or operate an existing stationary CI RICE?*

If you own or operate an existing non-emergency, non-black start CI stationary RICE with a site rating of more than 300 brake HP with a displacement of less than 30 liters per cylinder that uses diesel fuel, you must use diesel fuel that meets the requirements in 40 CFR 80.510(b) for nonroad diesel fuel. Existing non-emergency CI stationary RICE located in Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, or at area sources in areas of Alaska not accessible by the FAHS are exempt from the requirements of this section.

Applicable for the Caterpillar wood chipper engine

§ 63.6605 *What are my general requirements for complying with this subpart?*

(a) You must be in compliance with the emission limitations and operating limitations in this subpart that apply to you at all times.

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

§ 63.6612 *By what date must I conduct the initial performance tests or other initial compliance demonstrations if I own or operate an existing stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions or an existing stationary RICE located at an area source of HAP emissions?*

If you own or operate an existing stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions or an existing stationary RICE located at an area source of HAP emissions you are subject to the requirements of this section.

(a) You must conduct any initial performance test or other initial compliance demonstration according to Tables 4 and 5 to this subpart that apply to you within 180 days after the compliance date that is specified for your stationary RICE in §63.6595 and according to the provisions in §63.7(a)(2).

Table 4 -Non-Emergency CI RICE:

- **Reduce CO emissions** – measure O₂ at inlet and outlet of the control device – use a portable CO and O₂ analyzer

Table 5 -Non-Emergency CI RICE (> 500 hp)^a:

- **Limit concentration of CO using an oxidation catalyst, and using a CPMS; or**
- **Reduce CO emissions not using an oxidation catalyst; or** – must achieve the required CO percent reduction from initial performance test, install a CPMS to continuously monitor operating parameters
- **Limit the concentration of CO not using an oxidation catalyst** – the average CO concentration must be less than or equal to the CO emission limit as determined by the initial performance test, install a CPMS to continuously monitor operating parameters

^a Caterpillar wood chipper generator, engine rating of 650 bhp

§ 63.6620 *What performance tests and other procedures must I use?*

(a) You must conduct each performance test in Tables 3 and 4 of this subpart that applies to you.

(b) Each performance test must be conducted according to the requirements that this subpart specifies in Table 4 to this subpart. If you own or operate a non-operational stationary RICE that is subject to performance testing, you do not need to start up the engine solely to conduct the performance test. Owners and operators of a non-operational engine can conduct the performance test when the engine is started up again.

(c) [Reserved]

(d) You must conduct three separate test runs for each performance test required in this section, as specified in §63.7(e)(3). Each test run must last at least 1 hour.

(e)(1) You must use Equation 1 of this section to determine compliance with the percent reduction requirement:

$$\frac{C_i - C_o}{C_i} \times 100 = R \quad (\text{Eq. 1})$$

Where:

C_i = concentration of CO or formaldehyde at the control device inlet,

C_o = concentration of CO or formaldehyde at the control device outlet, and

R = percent reduction of CO or formaldehyde emissions.

(2) You must normalize the carbon monoxide (CO) or formaldehyde concentrations at the inlet and outlet of the control device to a dry basis and to 15 percent oxygen, or an equivalent percent carbon dioxide (CO₂). If pollutant concentrations are to be corrected to 15 percent oxygen and CO₂ concentration is measured in lieu of oxygen concentration measurement, a CO₂ correction factor is needed. Calculate the CO₂ correction factor as described in paragraphs (e)(2)(i) through (iii) of this section.

(i) Calculate the fuel-specific F_o value for the fuel burned during the test using values obtained from Method 19, section 5.2, and the following equation:

$$F_o = \frac{0.209 F_d}{F_c} \quad (\text{Eq. 2})$$

Where:

F_o = Fuel factor based on the ratio of oxygen volume to the ultimate CO₂ volume produced by the fuel at zero percent excess air.

0.209 = Fraction of air that is oxygen, percent/100.

F_d = Ratio of the volume of dry effluent gas to the gross calorific value of the fuel from Method 19, dsm^3 / J ($\text{dscf} / 10^6 \text{ Btu}$).

F_c = Ratio of the volume of CO₂ produced to the gross calorific value of the fuel from Method 19, dsm^3 / J ($\text{dscf} / 10^6 \text{ Btu}$).

(ii) Calculate the CO₂ correction factor for correcting measurement data to 15 percent oxygen, as follows:

$$X_{CO_2} = \frac{5.9}{F_o} \quad (\text{Eq. 3})$$

Where:

X_{CO_2} = CO₂ correction factor, percent.

5.9 = 20.9 percent O₂ - 15 percent O₂, the defined O₂ correction value, percent.

(iii) Calculate the NO_x and SO₂ gas concentrations adjusted to 15 percent O₂ using CO₂ as follows:

$$C_{adj} = C_a \frac{X_{CO_2}}{\%CO_2} \quad (\text{Eq. 4})$$

Where:

%CO₂ = Measured CO₂ concentration measured, dry basis, percent.

(f) If you comply with the emission limitation to reduce CO and you are not using an oxidation catalyst, if you comply with the emission limitation to reduce formaldehyde and you are not using NSCR, or if you comply with the emission limitation to limit the concentration of formaldehyde in the stationary RICE exhaust and you are not using an oxidation catalyst or NSCR, you must petition the Administrator for operating limitations to be established during the initial performance test and continuously monitored thereafter; or for approval of no operating limitations. You must not conduct the initial performance test until after the petition has been approved by the Administrator.

(g) If you petition the Administrator for approval of operating limitations, your petition must include the information described in paragraphs (g)(1) through (5) of this section.

(1) Identification of the specific parameters you propose to use as operating limitations;

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

(3) 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;

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

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

(h) If you petition the Administrator for approval of no operating limitations, your petition must include the information described in paragraphs (h)(1) through (7) of this section.

(1) Identification of the parameters associated with operation of the stationary RICE and any emission control device which could change intentionally (e.g., operator adjustment, automatic controller adjustment, etc.) or unintentionally (e.g., wear and tear, error, etc.) on a routine basis or over time;

(2) A discussion of the relationship, if any, between changes in the parameters and changes in HAP emissions;

(3) For the parameters which could change in such a way as to increase HAP emissions, a discussion of whether establishing limitations on the parameters would serve to limit HAP emissions;

(4) For the parameters which could change in such a way as to increase HAP emissions, a discussion of how you could establish upper and/or lower values for the parameters which would establish limits on the parameters in operating limitations;

(5) For the parameters, a discussion identifying the methods you could use to measure them and the instruments you could use to monitor them, as well as the relative accuracy and precision of the methods and instruments;

(6) For the parameters, a discussion identifying the frequency and methods for recalibrating the instruments you could use to monitor them; and

(7) A discussion of why, from your point of view, it is infeasible or unreasonable to adopt the parameters as operating limitations.

(i) The engine percent load during a performance test must be determined by documenting the calculations, assumptions, and measurement devices used to measure or estimate the percent load in a specific application. A written report of the average percent load determination must be included in the notification of compliance status. The following information must be included in the written report: the engine model number, the engine manufacturer, the year of purchase, the manufacturer's site-rated brake horsepower, the ambient temperature, pressure, and humidity during the performance test, and all assumptions that were made to estimate or calculate percent load during the performance test must be clearly explained. If measurement devices such as flow meters, kilowatt meters, beta analyzers, stain gauges, etc. are used, the model number of the measurement device, and an estimate of its accurate in percentage of true value must be provided.

§ 63.6625 What are my monitoring, installation, collection, operation, and maintenance requirements?

(e) If you own or operate any of the following stationary RICE, you must operate and maintain the stationary RICE and after-treatment control device (if any) according to the manufacturer's emission-related written instructions or develop your own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions:

(1) An existing stationary RICE with a site rating of less than 100 HP located at a major source of HAP emissions;

(2) An existing emergency or black start stationary RICE with a site rating of less than or equal to 500 HP located at a major source of HAP emissions;

(3) An existing emergency or black start stationary RICE located at an area source of HAP emissions;

(4) An existing non-emergency, non-black start stationary CI RICE with a site rating less than or equal to 300 HP located at an area source of HAP emissions;

(5) An existing non-emergency, non-black start 2SLB stationary RICE located at an area source of HAP emissions;

(6) An existing non-emergency, non-black start landfill or digester gas stationary RICE located at an area source of HAP emissions;

(7) An existing non-emergency, non-black start 4SLB stationary RICE with a site rating less than or equal to 500 HP located at an area source of HAP emissions;

(8) An existing non-emergency, non-black start 4SRB stationary RICE with a site rating less than or equal to 500 HP located at an area source of HAP emissions;

(9) An existing, non-emergency, non-black start 4SLB stationary RICE with a site rating greater than 500 HP located at an area source of HAP emissions that is operated 24 hours or less per calendar year; and

(10) An existing, non-emergency, non-black start 4SRB stationary RICE with a site rating greater than 500 HP located at an area source of HAP emissions that is operated 24 hours or less per calendar year.

(f) If you own or operate an existing emergency stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions or an existing emergency stationary RICE located at an area source of HAP emissions, you must install a non-resettable hour meter if one is not already installed.

(g) If you own or operate an existing non-emergency, non-black start CI engine greater than or equal to 300 HP that is not equipped with a closed crankcase ventilation system, you must comply with either paragraph (g)(1) or paragraph (g)(2) of this section. Owners and operators must follow the manufacturer's specified maintenance requirements for operating and maintaining the open or closed crankcase ventilation systems and replacing the crankcase filters, or can request the Administrator to approve different maintenance requirements that are as protective as manufacturer requirements. Existing CI engines located at area sources in areas of Alaska not accessible by the FAHS do not have to meet the requirements of paragraph (g) of this section.

(1) Install a closed crankcase ventilation system that prevents crankcase emissions from being emitted to the atmosphere, or

(2) Install an open crankcase filtration emission control system that reduces emissions from the crankcase by filtering the exhaust stream to remove oil mist, particulates, and metals.

(h) If you operate a new, reconstructed, or existing stationary engine, you must minimize the engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the emission standards applicable to all times other than startup in Tables 1a, 2a, 2c, and 2d to this subpart apply.

(i) If you own or operate a stationary CI engine that is subject to the work, operation or management practices in items 1 or 2 of Table 2c to this subpart or in items 1 or 4 of Table 2d to this subpart, you have the option of utilizing an oil analysis program in order to extend the specified oil change requirement in Tables 2c and 2d to this subpart. The oil analysis must be performed at the same frequency specified for changing the oil in Table 2c or 2d to this subpart. The analysis program must at a minimum analyze the following three parameters: Total Base Number, viscosity, and percent water content. The condemning limits for these parameters are as follows: Total Base Number is less than 30 percent of the Total Base Number of the oil when new; viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new; or percent water content (by volume) is greater than 0.5. If all of these condemning limits are not exceeded, the engine owner or operator is not required to change the oil. If any of the limits are exceeded, the engine owner or operator must change the oil within 2 days of receiving the results of the analysis; if the engine is not in operation when the results of the analysis are received, the engine owner or operator must change the oil within 2 days or before commencing operation, whichever is later. The owner or operator must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine.

(j) If you own or operate a stationary SI engine that is subject to the work, operation or management practices in items 6, 7, or 8 of Table 2c to this subpart or in items 5, 6, 7, 9, or 11 of Table 2d to this subpart, you have the option of utilizing an oil analysis program in order to extend the specified oil change requirement in Tables 2c and 2d to this subpart. The oil analysis must be performed at the same frequency specified for changing the oil in Table 2c or 2d to this subpart. The analysis program must at a minimum analyze the following three parameters: Total Acid Number, viscosity, and percent water content. The condemning limits for these parameters are as follows: Total Acid Number increases by more than 3.0 milligrams of potassium hydroxide (KOH) per gram from Total Acid Number of the oil when new; viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new; or percent water content (by volume) is greater than 0.5. If all of these condemning limits are not exceeded, the engine owner or operator is not required to change the oil. If any of the limits are exceeded, the engine owner or operator must change the oil within 2 days of receiving the results of the analysis; if the engine is not in operation when the results of the analysis are received, the engine owner or operator must change the oil within 2 days or before commencing operation, whichever is later. The owner or operator must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine.

§ 63.6630 How do I demonstrate initial compliance with the emission limitations and operating limitations?

(a) You must demonstrate initial compliance with each emission and operating limitation that applies to you according to Table 5 of this subpart.

Table 5 -Non-Emergency CI RICE (> 500 hp)^a:

- **Limit concentration of CO using an oxidation catalyst, and using a CPMS; or**
- **Reduce CO emissions not using an oxidation catalyst; or** – must achieve the required CO percent reduction from initial performance test, install a CPMS to continuously monitor operating parameters
- **Limit the concentration of CO not using an oxidation catalyst** – the average CO concentration must be less than or equal to the CO emission limit as determined by the initial performance test, install a CPMS to continuously monitor operating parameters

^a Caterpillar wood chipper generator, engine rating of 650 bhp

(b) During the initial performance test, you must establish each operating limitation in Tables 1b and 2b of this subpart that applies to you.

(c) You must submit the Notification of Compliance Status containing the results of the initial compliance demonstration according to the requirements in §63.6645.

§ 63.6635 How do I monitor and collect data to demonstrate continuous compliance?

(a) If you must comply with emission and operating limitations, you must monitor and collect data according to this section.

(b) Except for monitor malfunctions, associated repairs, required performance evaluations, and required quality assurance or control activities, you must monitor continuously at all times that the stationary RICE is operating. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.

(c) You may not use data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities in data averages and calculations used to report emission or operating levels. You must, however, use all the valid data collected during all other periods.

§ 63.6640 How do I demonstrate continuous compliance with the emission limitations and operating limitations?

(a) You must demonstrate continuous compliance with each emission limitation and operating limitation in Tables 1a and 1b, Tables 2a and 2b, Table 2c, and Table 2d to this subpart that apply to you according to methods specified in Table 6 to this subpart.

(b) You must report each instance in which you did not meet each emission limitation or operating limitation in Tables 1a and 1b, Tables 2a and 2b, Table 2c, and Table 2d to this subpart that apply to you. These instances are deviations from the emission and operating limitations in this subpart. These deviations must be reported according to the requirements in §63.6650. If you change your catalyst, you must reestablish the values of the operating parameters measured during the initial performance test. When you reestablish the values of your operating parameters, you must also conduct a performance test to demonstrate that you are meeting the required emission limitation applicable to your stationary RICE.

(c) [Reserved]

(d) For new, reconstructed, and rebuilt stationary RICE, deviations from the emission or operating limitations that occur during the first 200 hours of operation from engine startup (engine burn-in period) are not violations. Rebuilt stationary RICE means a stationary RICE that has been rebuilt as that term is defined in 40 CFR 94.11(a).

(e) You must also report each instance in which you did not meet the requirements in Table 8 to this subpart that apply to you. If you own or operate a new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions (except new or reconstructed 4SLB engines greater than or equal to 250 and less than or equal to 500 brake HP), a new or reconstructed stationary RICE located at an area source of HAP emissions, or any of the following RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you do not need to comply with the requirements in Table 8 to this subpart: An existing 2SLB stationary RICE, an existing 4SLB stationary RICE, an existing emergency stationary RICE, an existing limited use stationary RICE, or an existing stationary RICE which fires landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis. If you own or operate any of the following RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you do not need to comply with the requirements in Table 8 to this subpart, except for the initial notification requirements: a new or reconstructed stationary RICE that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, a new or reconstructed emergency stationary RICE, or a new or reconstructed limited use stationary RICE.

§ 63.6645 *What notifications must I submit and when?*

(a) You must submit all of the notifications in §§63.7(b) and (c), 63.8(e), (f)(4) and (f)(6), 63.9(b) through (e), and (g) and (h) that apply to you by the dates specified if you own or operate any of the following;

(1) An existing stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions.

(2) An existing stationary RICE located at an area source of HAP emissions.

(3) A stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions.

(4) A new or reconstructed 4SLB stationary RICE with a site rating of greater than or equal to 250 HP located at a major source of HAP emissions.

(5) This requirement does not apply if you own or operate an existing stationary RICE less than 100 HP, an existing stationary emergency RICE, or an existing stationary RICE that is not subject to any numerical emission standards.

(b) As specified in §63.9(b)(2), if you start up your stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions before the effective date of this subpart, you must submit an Initial Notification not later than December 13, 2004.

(c) If you start up your new or reconstructed stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions on or after August 16, 2004, you must submit an Initial Notification not later than 120 days after you become subject to this subpart.

(d) As specified in §63.9(b)(2), if you start up your stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions before the effective date of this subpart and you are required to submit an initial notification, you must submit an Initial Notification not later than July 16, 2008.

(e) If you start up your new or reconstructed stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions on or after March 18, 2008 and you are required to submit an initial notification, you must submit an Initial Notification not later than 120 days after you become subject to this subpart.

(f) If you are required to submit an Initial Notification but are otherwise not affected by the requirements of this subpart, in accordance with §63.6590(b), your notification should include the information in §63.9(b)(2)(i) through (v), and a statement that your stationary RICE has no additional requirements and explain the basis of the exclusion (for

example, that it operates exclusively as an emergency stationary RICE if it has a site rating of more than 500 brake HP located at a major source of HAP emissions).

(g) If you are required to conduct a performance test, you must submit a Notification of Intent to conduct a performance test at least 60 days before the performance test is scheduled to begin as required in §63.7(b)(1).

(h) If you are required to conduct a performance test or other initial compliance demonstration as specified in Tables 4 and 5 to this subpart, you must submit a Notification of Compliance Status according to §63.9(h)(2)(ii).

(1) For each initial compliance demonstration required in Table 5 to this subpart that does not include a performance test, you must submit the Notification of Compliance Status before the close of business on the 30th day following the completion of the initial compliance demonstration.

(2) For each initial compliance demonstration required in Table 5 to this subpart that includes a performance test conducted according to the requirements in Table 3 to this subpart, you must submit the Notification of Compliance Status, including the performance test results, before the close of business on the 60th day following the completion of the performance test according to §63.10(d)(2).

§ 63.6650 *What reports must I submit and when?*

(a) You must submit each report in Table 7 of this subpart that applies to you.

A compliance report is required semiannually for the Caterpillar wood chipper generator

(b) Unless the Administrator has approved a different schedule for submission of reports under §63.10(a), you must submit each report by the date in Table 7 of this subpart and according to the requirements in paragraphs (b)(1) through (b)(9) of this section.

(1) For semiannual Compliance reports, the first Compliance report must cover the period beginning on the compliance date that is specified for your affected source in §63.6595 and ending on June 30 or December 31, whichever date is the first date following the end of the first calendar half after the compliance date that is specified for your source in §63.6595.

(2) For semiannual Compliance reports, the first Compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date follows the end of the first calendar half after the compliance date that is specified for your affected source in §63.6595.

(3) For semiannual Compliance reports, each subsequent Compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.

(4) For semiannual Compliance reports, each subsequent Compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period.

(5) For each stationary RICE that is subject to permitting regulations pursuant to 40 CFR part 70 or 71, and if the permitting authority has established dates for submitting semiannual reports pursuant to 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6 (a)(3)(iii)(A), you may submit the first and subsequent Compliance reports according to the dates the permitting authority has established instead of according to the dates in paragraphs (b)(1) through (b)(4) of this section.

(6) For annual Compliance reports, the first Compliance report must cover the period beginning on the compliance date that is specified for your affected source in §63.6595 and ending on December 31.

(7) For annual Compliance reports, the first Compliance report must be postmarked or delivered no later than January 31 following the end of the first calendar year after the compliance date that is specified for your affected source in §63.6595.

(8) For annual Compliance reports, each subsequent Compliance report must cover the annual reporting period from January 1 through December 31.

(9) For annual Compliance reports, each subsequent Compliance report must be postmarked or delivered no later than January 31.

(c) The Compliance report must contain the information in paragraphs (c)(1) through (6) of this section.

(1) Company name and address.

(2) Statement by a responsible official, with that official's name, title, and signature, certifying the accuracy of the content of the report.

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

(4) If you had a malfunction during the reporting period, the compliance report must include the number, duration, and a brief description for each type of malfunction which occurred during the reporting period and which caused or may have caused any applicable emission limitation to be exceeded. The report must also include a description of actions taken by an owner or operator during a malfunction of an affected source to minimize emissions in accordance with §63.6605(b), including actions taken to correct a malfunction.

(5) If there are no deviations from any emission or operating limitations that apply to you, a statement that there were no deviations from the emission or operating limitations during the reporting period.

(6) If there were no periods during which the continuous monitoring system (CMS), including CEMS and CPMS, was out-of-control, as specified in §63.8(c)(7), a statement that there were no periods during which the CMS was out-of-control during the reporting period.

(d) For each deviation from an emission or operating limitation that occurs for a stationary RICE where you are not using a CMS to comply with the emission or operating limitations in this subpart, the Compliance report must contain the information in paragraphs (c)(1) through (4) of this section and the information in paragraphs (d)(1) and (2) of this section.

(1) The total operating time of the stationary RICE at which the deviation occurred during the reporting period.

(2) Information on the number, duration, and cause of deviations (including unknown cause, if applicable), as applicable, and the corrective action taken.

(e) For each deviation from an emission or operating limitation occurring for a stationary RICE where you are using a CMS to comply with the emission and operating limitations in this subpart, you must include information in paragraphs (c)(1) through (4) and (e)(1) through (12) of this section.

(1) The date and time that each malfunction started and stopped.

(2) The date, time, and duration that each CMS was inoperative, except for zero (low-level) and high-level checks.

(3) The date, time, and duration that each CMS was out-of-control, including the information in §63.8(c)(8).

(4) The date and time that each deviation started and stopped, and whether each deviation occurred during a period of malfunction or during another period.

(5) A summary of the total duration of the deviation during the reporting period, and the total duration as a percent of the total source operating time during that reporting period.

(6) A breakdown of the total duration of the deviations during the reporting period into those that are due to control equipment problems, process problems, other known causes, and other unknown causes.

(7) A summary of the total duration of CMS downtime during the reporting period, and the total duration of CMS downtime as a percent of the total operating time of the stationary RICE at which the CMS downtime occurred during that reporting period.

(8) An identification of each parameter and pollutant (CO or formaldehyde) that was monitored at the stationary RICE.

(9) A brief description of the stationary RICE.

(10) A brief description of the CMS.

(11) The date of the latest CMS certification or audit.

(12) A description of any changes in CMS, processes, or controls since the last reporting period.

(f) Each affected source that has obtained a title V operating permit pursuant to 40 CFR part 70 or 71 must report all deviations as defined in this subpart in the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A). If an affected source submits a Compliance report pursuant to Table 7 of this subpart along with, or as part of, the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), and the Compliance report includes all required information concerning deviations from any emission or operating limitation in this subpart, submission of the Compliance report shall be deemed to satisfy any obligation to report the same deviations in the semiannual monitoring report. However, submission of a Compliance report shall not otherwise affect any obligation the affected source may have to report deviations from permit requirements to the permit authority.

(g) If you are operating as a new or reconstructed stationary RICE which fires landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, you must submit an annual report according to Table 7 of this subpart by the date specified unless the Administrator has approved a different schedule, according to the information described in paragraphs (b)(1) through (b)(5) of this section. You must report the data specified in (g)(1) through (g)(3) of this section.

(1) Fuel flow rate of each fuel and the heating values that were used in your calculations. You must also demonstrate that the percentage of heat input provided by landfill gas or digester gas is equivalent to 10 percent or more of the total fuel consumption on an annual basis.

(2) The operating limits provided in your federally enforceable permit, and any deviations from these limits.

(3) Any problems or errors suspected with the meters.

§ 63.6655 *What records must I keep?*

(a) If you must comply with the emission and operating limitations, you must keep the records described in paragraphs (a)(1) through (a)(5), (b)(1) through (b)(3) and (c) of this section.

(1) A copy of each notification and report that you submitted to comply with this subpart, including all documentation supporting any Initial Notification or Notification of Compliance Status that you submitted, according to the requirement in §63.10(b)(2)(xiv).

(2) Records of the occurrence and duration of each malfunction of operation (*i.e.*, process equipment) or the air pollution control and monitoring equipment.

(3) Records of performance tests and performance evaluations as required in §63.10(b)(2)(viii).

(4) Records of all required maintenance performed on the air pollution control and monitoring equipment.

(5) Records of actions taken during periods of malfunction to minimize emissions in accordance with §63.6605(b), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation.

(b) For each CEMS or CPMS, you must keep the records listed in paragraphs (b)(1) through (3) of this section.

(1) Records described in §63.10(b)(2)(vi) through (xi).

(2) Previous (*i.e.*, superseded) versions of the performance evaluation plan as required in §63.8(d)(3).

(3) Requests for alternatives to the relative accuracy test for CEMS or CPMS as required in §63.8(f)(6)(i), if applicable.

(c) If you are operating a new or reconstructed stationary RICE which fires landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, you must keep the records of your daily fuel usage monitors.

(d) You must keep the records required in Table 6 of this subpart to show continuous compliance with each emission or operating limitation that applies to you.

(e) You must keep records of the maintenance conducted on the stationary RICE in order to demonstrate that you operated and maintained the stationary RICE and after-treatment control device (if any) according to your own maintenance plan if you own or operate any of the following stationary RICE:

(1) An existing stationary RICE with a site rating of less than 100 brake HP located at a major source of HAP emissions.

(2) An existing stationary emergency RICE.

(3) An existing stationary RICE located at an area source of HAP emissions subject to management practices as shown in Table 2d to this subpart.

(f) If you own or operate any of the stationary RICE in paragraphs (f)(1) or (2) of this section, you must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. The owner or operator must document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation. If the engines are used for demand response operation, the owner or operator must keep records of the notification of the emergency situation, and the time the engine was operated as part of demand response.

(1) An existing emergency stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions that does not meet the standards applicable to non-emergency engines.

(2) An existing emergency stationary RICE located at an area source of HAP emissions that does not meet the standards applicable to non-emergency engines.

§ 63.6660 *In what form and how long must I keep my records?*

(a) Your records must be in a form suitable and readily available for expeditious review according to §63.10(b)(1).

(b) As specified in §63.10(b)(1), you must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

(c) You must keep each record readily accessible in hard copy or electronic form for at least 5 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to §63.10(b)(1).