

# **Statement of Basis**

**Tier I Operating Permit No. T1-2017.0007**

**Project ID 61845**

**Milner Butte Landfill**

**Burley, Idaho**

**Facility ID 031-00046**

**Final**

**March 23, 2018**

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The purpose of this Statement of Basis is to set forth the legal and factual basis for the Tier I operating permit terms and conditions, including references to the applicable statutory or regulatory provisions for the terms and conditions, as required by IDAPA 58.01.01.362

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## 1. ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE

acfm	actual cubic feet per minute
ASTM	American Society for Testing and Materials
BACT	Best Available Control Technology
BMP	best management practices
Btu	British thermal unit
CAA	Clean Air Act
CAM	Compliance Assurance Monitoring
CEMS	continuous emission monitoring systems
cfm	cubic feet per minute
CFR	Code of Federal Regulations
CI	compression ignition
CMS	continuous monitoring systems
CO	carbon monoxide
CO <sub>2</sub>	carbon dioxide
CO <sub>2</sub> e	CO <sub>2</sub> equivalent emissions
COMS	continuous opacity monitoring systems
DEQ	Department of Environmental Quality
dscf	dry standard cubic feet
EPA	U.S. Environmental Protection Agency
GCCS	Gas Collection and Control System
GHG	greenhouse gases
gph	gallons per hour
gpm	gallons per minute
gr	grains (1 lb = 7,000 grains)
HAP	hazardous air pollutants
HHV	higher heating value
hp	horsepower
hr/yr	hours per consecutive 12 calendar month period
ICE	internal combustion engines
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
IEU	insignificant emissions units
iwg	inches of water gauge
km	kilometers
lb/hr	pounds per hour
m	meters
MACT	Maximum Achievable Control Technology
MBL	Milner Butte Landfill
Mg	megagrams
mg/dscm	milligrams per dry standard cubic meter
MMBtu	million British thermal units
MMscf	million standard cubic feet
MRRR	Monitoring, Recordkeeping and Reporting Requirements
NESHAP	National Emission Standards for Hazardous Air Pollutants
NMOC	non-methane organic compound
NO <sub>2</sub>	nitrogen dioxide
NO <sub>x</sub>	nitrogen oxides
NSPS	New Source Performance Standards
O&M	operation and maintenance
O <sub>2</sub>	oxygen

PC	permit condition
PM	particulate matter
PM <sub>2.5</sub>	particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers
PM <sub>10</sub>	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
ppm	parts per million
ppmv	parts per million by volume
ppmvd	parts per million by volume, dry
ppmw	parts per million by weight
PSD	Prevention of Significant Deterioration
psig	pounds per square inch gauge
PTC	permit to construct
PTE	potential to emit
PW	process weight rate
RICE	reciprocating internal combustion engines
<i>Rules</i>	<i>Rules for the Control of Air Pollution in Idaho</i>
scf	standard cubic feet
scfm	standard cubic feet per minute
SI	spark ignition
SIP	State Implementation Plan
SO <sub>2</sub>	sulfur dioxide
SO <sub>x</sub>	sulfur oxides
SSM	startup, shutdown and malfunction
T/day	tons per calendar day
T/hr	tons per hour
T/yr	tons per consecutive 12 calendar month period
T1	Tier I operating permit
T2	Tier II operating permit
TAP	toxic air pollutants
T-RACT	Toxic Air Pollutant Reasonably Available Control Technology
ULSD	ultra low sulfur diesel
U.S.C.	United States Code
VOC	volatile organic compound

## 2. INTRODUCTION AND APPLICABILITY

The Milner Butte Landfill (MBL), owned and operated by Southern Idaho Regional Solid Waste District, is located in Burley, Idaho. Even though this source is a minor source, in accordance with IDAPA 58.01.01.859.04.c, the facility "...must submit a complete Federal Operating Permit application within one (1) year of becoming subject to this requirement." The facility became subject to this requirement with the promulgation of 40 CFR 60 Subpart WWW on March 16, 1996 and with the subsequent design capacity report submittal required by June 10, 1996. MBL obtained the initial Tier I operating permit in 2012.

The MBL is required to apply for a Tier I operating permit renewal pursuant to IDAPA 58.01.01.369. The application for a Tier I operating permit must contain a certification from MBL as to its compliance status with all applicable requirements (IDAPA 58.01.01.314.09).

IDAPA 58.01.01.362 requires that as part of its review of the Tier I application, DEQ shall prepare a technical memorandum (i.e. statement of basis) that sets forth the legal and factual basis for the draft Tier I operating permit terms and conditions including reference to the applicable statutory provisions or the draft denial. This document provides the basis for the draft Tier I operating permit for MBL.

The format of this Statement of Basis follows that of the permit. The MBL Tier I operating permit is organized into sections. They are as follows:

### **Section 1 – Acronyms, Units, and Chemical Nomenclature**

The acronyms, units, and chemical nomenclature used in the permit are defined in this section.

### **Section 2 - Tier I Operating Permit Scope**

The scope describes this permitting action.

### **Section 3 - Facility-wide Conditions**

The Facility-wide Conditions section contains the applicable requirements (permit conditions) that apply facility-wide. Where required, monitoring, recordkeeping and reporting requirements (MRRR) sufficient to assure compliance with a permit condition follows the permit condition.

### **Sections 4 through 5– Emissions Unit-Specific Sections**

The emissions unit-specific sections of the permit contain the applicable requirements that specially apply to each regulated emissions unit. Some requirements that apply to an emissions unit (e.g. opacity limits) may be contained in the facility-wide conditions. As with the facility-wide conditions, monitoring, recordkeeping and reporting requirements sufficient to assure compliance with each applicable requirement immediately follows the applicable requirement.

### **Section 6 –Insignificant Activities**

This section lists those emissions units and activities determined to be insignificant activities based on size or production as allowed by IDAPA 58.01.01.317.01.b.

### **Section 7 – General Provisions**

The final section of the permit contains standard terms and conditions that apply to all major facilities subject to IDAPA 58.01.01.300. This section is the same for all Tier I sources. These conditions have been reviewed by EPA and contain all terms required by IDAPA 58.01.01 et al as well as requirements from other air quality laws and regulations. Each general provision has been paraphrased so it is more easily understood by the general public; however, there is no intent to alter the effect of the requirement. Should there be a discrepancy between a paraphrased general provision in this statement of basis and the rule or permit, the rule or permit shall govern.

## **3. FACILITY INFORMATION**

### **3.1 Facility Description**

The MBL, owned and operated by Southern Idaho Regional Solid Waste District, is located in Burley, Idaho. The MBL is located in Western Cassia approximately 13 miles west of Burley, Idaho and 25 miles east of Twin Falls, Idaho. The site lies near the east slope of Milner Butte and occupies 640 acres. The site began accepting waste in 1994 and currently consists of four existing contiguous solid waste disposal units (cells) occupying approximately 58 acres. The landfill has a current overall permitted capacity of 140 acres and accepts mixed municipal solid waste from seven counties in southern Idaho.

Based upon an estimated annual increase of 1.5 percent in waste acceptance rates for the landfill for year 2011 and onward and the total maximum permitted waste capacity of the landfill (19,400,000 cubic yards), it is estimated that the final maximum permitted capacity will be reached by 2060.

The existing Gas Collection and Control System (GCCS) was constructed during 2009 and is currently being evaluated for system performance and well coverage. To increase coverage, five vertical extraction wells were installed in May 2010 and connected to the system on June 5, 2010. The GCCS consists of a header piping network, vertical gas extraction wells, horizontal gas collectors, condensate collection, connections to the existing Leachate Collection and Recovery System, and a blower/flare station.

The blower/flare station is equipped with two blowers and a single enclosed flare. A second blower is used in the event of a breakdown or subsequent maintenance to the primary blower. The blowers are manufactured by Houston Service Industries and are rated at 30 horsepower (hp) each. The flare was manufactured by Perennial Energy and has a maximum rating of 1,500 standard cubic feet per minute (scfm) at 50 % methane. The flare is equipped with:

- Continuous temperature and flow recorder
- Flow meter
- UV flame scanner to monitor for flame failure
- Automated shut-off (isolation valve) to close off the gas supply to the flare and avoid venting to atmosphere
- Flame arrestor

On July 28, 2017, the MBL is issued a Permit to Construct (PTC) to install and operate two 1,810 hp generator engines that will burn landfill gas.

### 3.2 Facility Permitting History

#### Tier I Operating Permit History - Previous 5-year permit term April 24, 2012 to March 23, 2018

The following information is the permitting history of this Tier I facility during the previous five-year permit term which was from April 24, 2012 to March 23, 2018. This information was derived from a review of the permit files available to DEQ. Permit status is noted as active and in effect (A) or superseded (S).

April 24, 2012      T1-2011.0076 project 60806, initial Tier I operating permit, Permit status (A, but will become S upon issuance of this permit)

#### Underlying Permit History - Includes every underlying permit issued to this facility

The following information is the comprehensive permitting history of all underlying applicable permits issued to this Tier I facility. This information was derived from a review of the permit files available to DEQ. Permit status is noted as active and in effect (A) or superseded (S).

April 12, 2012      P-2011.0054 project 60771, initial PTC, Permit status (S)

July 28, 2017      P-2011.0054 project 61834, install and operates two 1,810 hp generator engines that will operate on landfill gas, Permit status (S)

January 5, 2018      P-2011.0054 project 61985, revising H<sub>2</sub>S monitoring and reporting requirements, Permit status (A)

## 4. APPLICATION SCOPE AND APPLICATION CHRONOLOGY

### 4.1 Application Scope

This permit is the renewal of the existing Tier I operating permit for this facility.

### 4.2 Application Chronology

January 15, 2017      DEQ received an application

March 27, 2017      DEQ determined that the application was incomplete.

April 6, 2017      DEQ received supplemental information from the applicant.

April 20, 2017      DEQ determined that the application was complete.

November 27, 2017      DEQ made available the draft permit and statement of basis for peer and regional office review.

December 7, 2017 DEQ made available the draft permit and statement of basis for applicant review.  
 January 29 – February 28, 2018 DEQ provided a public comment period on the proposed action.  
 March 8, 2018 DEQ provided the proposed permit and statement of basis for EPA review.  
 March 23, 2018 DEQ issued the final permit and statement of basis.

## 5. EMISSIONS UNITS, PROCESS DESCRIPTION(S), AND EMISSIONS INVENTORY

This section lists the emissions units, describes the production or manufacturing processes, and provides the emissions inventory for this facility. The information presented was provided by the applicant in its permit application. Also listed in this section are the insignificant activities based on size or production rate.

### 5.1 Process No. 1 – LANDFILL

Table 5.1 lists the emissions units and control devices associated with the landfill.

**Table 5.1 EMISSIONS UNITS, CONTROL DEVICE, AND DISCHARGE POINT INFORMATION**

Emissions Unit Description	Control Device (if applicable)
Landfill Max. Capacity: 19,400,000 cubic yards Date of Construction: 1993	Flare Manufacturer: Perennial Energy, Inc. Model No.: FL114-32-E  And/Or Landfill Gas Conditioning Skid (Gas Filtering, dewatering, and compressing) Manufacturer: LFG Specialties, Capital Services, CB&I Rated Capacity 1,000 scfm

### 5.2 Process No. 2 - Internal Combustion Engines

Table 5.2 lists the emissions units and control devices associated with the internal combustion engines.

**Table 5.2 EMISSIONS UNITS, CONTROL DEVICE, AND DISCHARGE POINT INFORMATION**

Emissions Unit Description	Control Device (if applicable)
Engine Generator Sets (2) Manufacturer: Dresser Rand Model: HGM 560 Engine Rated Capacity: 1,750 Hp (each, @ 4,390 feet and 86° F) Electric Generator Power Rating: 1,263 kW (each, @ 4,390 feet and 86° F) Date manufactured: 2017 Model year: 2017	None

The facility will install two internal combustion engines to generate electricity from burning landfill gas. The existing flare will burn landfill gas when either engine is offline.

### 5.3 Insignificant Emissions Units Based on Size or Production Rate

No emissions unit or activity subject to an applicable requirement may qualify as an insignificant emissions unit or activity. As required by IDAPA 58.01.01.317.01.b, insignificant emissions units (IEU's) based on size or production rate must be listed in the permit application. Table 5.3 lists the IEU's

identified in the permit application. Also summarized is the regulatory authority or justification for each IEU.

**Table 5.3 INSIGNIFICANT EMISSION UNITS AND REGULATORY AUTHORITY/JUSTIFICATION**

Emissions Unit / Activity	Regulatory Authority / Justification
Mobile transport tanks on vehicles	a.i.2
Brazing, soldering, and welding equipment	a.i.12
Portable electrical generators	a.i.19
Plastic pipe welding	a.i.26
Plant maintenance	a.i.28
Maintenance of paved streets	a.i.30
General vehicle maintenance	a.i.40
Comfort air conditioning or air cooling systems	a.i.41
Fire suppression systems	a.i.46
Repair and maintenance shop activities	a.i.64
Solid waste containers	a.i.69
Air compressors	a.i.78
Sludge dewatering and wet sludge handling	a.i.100
Diesel storage tanks	b.i.3
350,000 BTU/hr Combustion source	b.i.6
Portable 700 hp diesel-powered grinder	b.i.30

The permit application identified the units subject to IDAPA 58.01.01.317.a, although only those units subject to IDAPA 58.01.01.b.i are required to be in the permit application. Only the b.i sources have been listed in the permit.

#### 5.4 Non-applicable Requirements for Which a Permit Shield is Requested

The facility did not make any specific permit shield request.

#### 5.5 Emissions Inventory

Table 5.4 summarizes the emissions inventory for this facility. All values are expressed in units of tons-per-year and represent the facility's potential to emit. Potential to emit is defined as the maximum capacity of a facility or stationary source to emit an air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the facility or source to emit an air pollutant, including air pollution control equipment and restrictions on hour of operation or on the type or amount of material combusted, stored or processed shall be treated as part of its design if the limitation or the effect it would have on emission is state or federally enforceable.

Listed below Table 5.4 is the PTE taken from the underlying PTC No. P-2011.0054 project 61834 issued on July 28, 2017 (2017AAG613[V4]) and with a minor correction of adding emissions from the existing combustion IEUs. The documentation provided by the applicant in the underlying PTC for the emissions inventory and emission factors for the point sources and in the Tier I renewal application for the fugitive sources are provided as Appendix A of this statement of basis.

**Table 5.4 EMISSIONS INVENTORY – POTENTIAL TO EMIT (T/yr)**

Source	PM <sub>10</sub> /PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>x</sub>	CO	VOC	HAP
	T/yr <sup>(a)</sup>	T/yr <sup>(a)</sup>	T/yr <sup>(a)</sup>	T/yr <sup>(a)</sup>	T/yr <sup>(a)</sup>	T/yr <sup>(a)</sup>
Flare	1.16	4.30	3.02	3.56	1.42	0.34

Source	PM <sub>10</sub> /PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>x</sub>	CO	VOC	HAP
	T/yr <sup>(a)</sup>	T/yr <sup>(a)</sup>	T/yr <sup>(a)</sup>	T/yr <sup>(a)</sup>	T/yr <sup>(a)</sup>	T/yr <sup>(a)</sup>
Engine #1	0.49	2.68	21	46.1	14.7	
Engine #2	0.49	2.68	21	46.1	14.7	
Existing LPG Radiant Heat	4.88E-03	7.180E-04	9.334E-02	5.385E-02	3.590E-03	
Existing Used Oil Unit Heat	3.28E-01	3.925E-01	1.752E-01	2.300E-02	1.095E-02	
Existing Used Oil Unit Heat	3.28E-01	3.925E-01	1.752E-01	2.300E-02	1.095E-02	
Existing LPG Radiant Heat	4.88E-03	7.180E-04	9.334E-02	5.385E-02	3.590E-03	
Portable 700 hp diesel-powered grinder	0.01	0.01	0.35	0.20	0.02	
<b>Post Project Totals</b>	<b>2.81</b>	<b>10.46</b>	<b>45.85</b>	<b>96.20</b>	<b>30.83</b>	<b>0.34</b>

## 6. EMISSIONS LIMITS AND MRRR

This section contains the applicable requirements for this T1 facility.

This section is divided into the following subsections.

- Facility-Wide Conditions;
- Landfill Emissions Limits;
- Internal Combustion Engines Emissions Limits;
- Tier I Operating Permit General Provisions.

### ***MRRR***

Monitoring, recordkeeping and reporting requirements (MRRR) are the means with which compliance with an applicable requirement is demonstrated. In this section, the applicable requirement (permit condition) is provided first followed by the MRRR. Should an applicable requirement not include sufficient MRRR to satisfy IDAPA 58.01.01.322.06, 07, and 08, then the permit must establish adequate monitoring, recordkeeping and reporting sufficient to yield reliable data from the relevant time period that are representative of the source's compliance with the permit (i.e. gap filling). In addition to the specific MRRR provided for each applicable requirement, generally applicable facility-wide conditions and general provisions may also be provided, such as performance testing, reporting, and certification requirements.

The legal and factual basis for each permit condition is provided for in this document. If a permit condition was changed due to facility draft comments or public comments, an explanation of the changes is provided.

### ***State Enforceability***

An applicable requirement that is not required by the federal CAA and has not been approved by EPA as a SIP-approved requirement is identified as a "State-only" requirement and is enforceable only under state law. State-only requirements are not enforceable by the EPA or citizens under the CAA. State-only requirements are identified in the permit within the citation of the legal authority for the permit condition.

### ***Federal Enforceability***

Unless identified as "State-only," all applicable requirements, including MRRR, are state and federally enforceable. It should be noted that while a violation of a MRRR is a violation of the permit, it is not necessarily a violation of the underlying applicable requirement (e.g. emissions limit).

To minimize the length of this document, the following permit conditions and MRRR have been paraphrased. Refer to the permit for the complete requirements.

## 6.1 Facility-wide Conditions

### Permit Condition 3.2 - Fugitive Dust

All reasonable precautions shall be taken to prevent PM from becoming airborne in accordance with IDAPA 58.01.01.650-651.

[IDAPA 58.01.01.650-651, 3/30/07]

### MRRR (Permit Conditions 3.3 through 3.5)

- Monitor and maintain records of the frequency and the methods used to control fugitive dust emissions;
- Maintain records of all fugitive dust complaints received and the corrective action taken in response to the complaint;
- Conduct facility-wide inspections of all sources of fugitive emissions. If any of the sources of fugitive dust are not being reasonably controlled, corrective action is required.

[IDAPA 58.01.01.322.06, 07, 08, 4/5/2000]

### Permit Condition 3.6 - Odors

The permittee shall not allow, suffer, cause, or permit the emission of odorous gases, liquids, or solids to the atmosphere in such quantities as to cause air pollution.

[IDAPA 58.01.01.775-776 (State-only), 5/1/94]

### MRRR (Permit Condition 3.7)

- Maintain records of all odor complaints received and the corrective action taken in response to the complaint;
- Take appropriate corrective action if the complaint has merit, and log the date and corrective action taken.

[IDAPA 58.01.01.322.06, 07 (State only), 5/1/94]

### Permit Condition 3.8 - Visible Emissions

The permittee shall not discharge any air pollutant to the atmosphere from any point of emission for a period or periods aggregating more than three minutes in any 60-minute period which is greater than 20% opacity as determined by procedures contained in IDAPA 58.01.01.625. These provisions shall not apply when the presence of uncombined water, nitrogen oxides, and/or chlorine gas is the only reason for the failure of the emission to comply with the requirements of this section.

[IDAPA 58.01.01.625, 4/5/00]

### MRRR (Permit Condition 3.9 through 3.10)

- Conduct facility-wide inspections of all emissions units subject to the visible emissions standards (or rely on continuous opacity monitoring);
- If visible emissions are observed, take appropriate corrective action and/or perform a Method 9 opacity test;
- Maintain records of the results of each visible emissions inspection.

[IDAPA 58.01.01.322.06, 07, 5/1/94]

### Permit Conditions 3.11 through 3.15 - Excess Emissions

The permittee shall comply with the procedures and requirements of IDAPA 58.01.01.130-136 for excess emissions. The provisions of IDAPA 58.01.01.130-136 shall govern in the event of conflicts between the excess emissions facility wide conditions and the regulations of IDAPA 58.01.01.130-136.

### MRRR (Permit Conditions 3.12 through 3.15)

Monitoring, recordkeeping and reporting requirements for excess emissions are provided in Sections 131 through 136.

- Take appropriate action to correct, reduce, and minimize emissions from excess emissions events;
- Prohibit excess emissions during any DEQ Atmospheric Stagnation Advisory or Wood Stove Curtailment Advisory;
- Notify DEQ of each excess emissions event as soon as possible, including information regarding upset, breakdown, or safety events.
- Submit a report for each excess emissions event to DEQ;
- Maintain records of each excess emissions event.

**Permit Condition 3.16 – Fuel-Burning Equipment PM Standards**

The permittee shall not discharge to the atmosphere from any fuel-burning equipment PM in excess of 0.015 gr/dscf of effluent gas corrected to 3% oxygen by volume for gas, 0.050 gr/dscf of effluent gas corrected to 3% oxygen by volume for liquid.

[IDAPA 58.01.01.676-677, 5/1/94]

**MRRR**

No specific monitoring is required for this facility-wide condition. As with all permit conditions, the permittee must certify compliance with this condition annually, which includes making a reasonable inquiry to determine if this requirement was met during the reporting period.

**Permit Condition 3.17 - Sulfur Content Limits**

The permittee shall not sell, distribute, use, or make available for use any of the following:

- Distillate fuel oil containing more than the following percentages of sulfur:
  - ASTM Grade 1 fuel oil, 0.3% by weight.
  - ASTM Grade 2 fuel oil, 0.5% by weight.
- Coal containing greater than 1.0% sulfur by weight.
- DEQ may approve an exemption from these fuel sulfur content requirements (IDAPA 58.01.01.725.01 725.04) if the permittee demonstrates that, through control measures or other means, SO<sub>2</sub> emissions are equal to or less than those resulting from the combustion of fuels complying with these limitations.

[IDAPA 58.01.01.725, 3/29/10]

**MRRR - (Permit Condition 3.18)**

The permittee shall maintain documentation of supplier verification of fuel sulfur content on an as received basis.

**Permit Condition 3.19 - Monitoring and Recordkeeping**

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

[IDAPA 58.01.01.322.06, 07, 5/1/94]

## **MRRR**

No specific monitoring is required for this facility-wide condition. As with all permit conditions, the permittee must certify compliance with this condition annually, which includes making a reasonable inquiry to determine if this requirement was met during the reporting period.

### **Permit Conditions 3.20 through 3.23 - Performance Testing**

If performance testing is required, the permittee shall provide notice of intent to test to DEQ at least 15 days prior to the scheduled test or shorter time period as provided in a permit, order, consent decree, or by DEQ approval. DEQ may, at its option, have an observer present at any emissions tests conducted on a source. DEQ requests such testing not be performed on weekends or state holidays.

All testing shall be conducted in accordance with the procedures in IDAPA 58.01.01.157. Without prior DEQ approval, any alternative testing is conducted solely at the permittee's risk. If the permittee fails to obtain prior written approval by DEQ for any testing deviations, DEQ may determine that the testing does not satisfy the testing requirements. Therefore, prior to conducting any performance test, the permittee is encouraged to submit in writing to DEQ, at least 30 days in advance, the following for approval:

- The type of method to be used
- Any extenuating or unusual circumstances regarding the proposed test
- The proposed schedule for conducting and reporting the test  
[IDAPA 58.01.01.157, 4/5/00; IDAPA 58.01.01.322.06, 08.a, 09, 5/1/94]

### **MRRR (Permit Conditions 3.22 and 3.23)**

The permittee shall submit compliance test report(s) to DEQ following testing.  
[IDAPA 58.01.01.157, 4/5/00; IDAPA 58.01.01.322.06, 08.a, 09, 5/1/94]

### **Permit Condition 3.24 - Reports and Certifications**

This permit condition establishes generally applicable MRRR for submittal of reports, certifications, and notifications to DEQ and/or EPA as specified.  
[IDAPA 58.01.01.322.08, 11, 5/1/94]

## **MRRR**

No specific monitoring is required for this facility-wide condition. As with all permit conditions, the permittee must certify compliance with this condition annually, which includes making a reasonable inquiry to determine if this requirement was met during the reporting period.

### **Permit Condition 3.25 - Open Burning**

The permittee shall comply with the *Rules for Control of Open Burning*, IDAPA 58.01.01.600-623.  
[IDAPA 58.01.01.600-623, 5/08/09]

## **MRRR**

No specific monitoring is required for this facility-wide condition. As with all permit conditions, the permittee must certify compliance with this condition annually, which includes making a reasonable inquiry to determine if this requirement was met during the reporting period.

### **Permit Condition 3.26 - Asbestos**

The permittee shall comply with all applicable requirements of 40 CFR 61, Subpart M—“National Emission Standard for Asbestos.”  
[40 CFR 61, Subpart M]

## **MRRR**

No specific monitoring is required for this facility-wide condition. As with all permit conditions, the permittee must certify compliance with this condition annually, which includes making a reasonable inquiry to determine if this requirement was met during the reporting period.

**Permit Condition 3.27 – Regulated Substances for Accidental Release Prevention**

(a)

An owner or operator of a stationary source that has more than a threshold quantity of a regulated substance in a process, as determined under 40 CFR 68.115, shall comply with the requirements of the Chemical Accident Prevention Provisions at 40 CFR 68 no later than the latest of the following dates:

- Three years after the date on which a regulated substance present above a threshold quantity is first listed under 40 CFR 68.130.
- The date on which a regulated substance is first present above a threshold quantity in a process. [40 CFR 68.10 (a)]

**MRRR**

No monitoring is required for this facility-wide condition. As with all permit conditions, Milner Butte Landfill must certify compliance with this condition annually, which includes making a reasonable inquiry to determine if this requirement was met during the reporting period.

**Permit Condition 3.28 – Recycling and Emissions Reductions**

The permittee shall comply with applicable standards for recycling and emissions reduction pursuant to 40 CFR 82, Subpart F, Recycling and Emissions Reduction.

[40 CFR 82, Subpart F]

**MRRR**

No monitoring is required for this facility-wide condition. As with all permit conditions, Milner Butte Landfill must certify compliance with this condition annually, which includes making a reasonable inquiry to determine if this requirement was met during the reporting period.

**Permit Condition 3.29 through 3.31- NSPS/NESHAP General Provisions**

This facility is subject to 40 CFR 60, Subparts WWW and JJJJ, 40 CFR 61, Subpart M and 40 CFR 63, Subpart AAAA, and is therefore required to comply with applicable General Provisions.

[40 CFR 60/61/63, Subpart A]

**Permit Condition 3.32 - Incorporation of Federal Requirements by Reference**

Unless expressly provided otherwise, any reference in this permit to any document identified in IDAPA 58.01.01.107.03 shall constitute the full incorporation into this permit of that document for the purposes of the reference, including any notes and appendices therein.

[IDAPA 58.01.01.107, 4/7/11]

**MRRR**

No specific monitoring is required for this facility-wide condition. As with all permit conditions, the permittee must certify compliance with this condition annually, which includes making a reasonable inquiry to determine if this requirement was met during the reporting period.

**6.2 Emissions Unit-Specific Emissions Limits and MRR**

**Landfill**

**Permit Condition 4.4**

**Hydrogen Sulfide Limit**

The hydrogen sulfide concentration in the landfill gas being burned in the flare or combusted in the engines shall not exceed 150 ppmv.

## **MRRR – (Permit Conditions 4.18, 4.19, and 4.20)**

### **4.18 Hydrogen Sulfide (H<sub>2</sub>S) Concentration Monitoring**

- The permittee shall measure the H<sub>2</sub>S concentration, in ppmv, of the landfill gas stream prior to being combusted in the flare and prior to being combusted in the engines. The H<sub>2</sub>S concentration at each location shall be determined by conducting three separate measurements within five minutes of each other. The three separate measurements shall then be averaged to determine compliance with the Hydrogen Sulfide Limit permit condition.

If the landfill gas that is combusted in the flare and the engines originates from the same wells then monitoring may be limited to the landfill gas stream prior to being combusted in either the flare or the engines, both locations do not need to be monitored.

### **4.19 Hydrogen Sulfide (H<sub>2</sub>S) Concentration Monitoring Schedule**

H<sub>2</sub>S concentration monitoring shall occur as follows:

- Beginning the day following permit issuance, the Permittee shall measure the H<sub>2</sub>S concentration once per day for five consecutive business days.
- If the measured H<sub>2</sub>S concentration demonstrates compliance with the landfill gas stream Hydrogen Sulfide Limit after five consecutive business days. Subsequent H<sub>2</sub>S monitoring shall occur once per week for four consecutive weeks.
- If the H<sub>2</sub>S concentration demonstrates compliance with the landfill gas stream Hydrogen Sulfide Limit after four consecutive weeks, then subsequent H<sub>2</sub>S monitoring shall occur once every three months continuing thereafter.
- If the H<sub>2</sub>S concentration does not demonstrate compliance during any of the monitoring periods, then H<sub>2</sub>S monitoring shall revert back to the daily schedule.

### **4.20 Hydrogen Sulfide (H<sub>2</sub>S) Concentration Recordkeeping**

Records shall include the results of each H<sub>2</sub>S measurement and the calculated average of the three separate H<sub>2</sub>S measurements used to demonstrate compliance with Hydrogen Sulfide Limit permit condition.

The hand held H<sub>2</sub>S monitor used to measure the H<sub>2</sub>S concentration of the landfill gas stream shall have a certified accuracy of plus or minus 10%. The hand held monitor shall be calibrated and maintained in accordance with the manufacturer's specifications.

Records of this information shall be maintained in accordance with the Recordkeeping General Provision.

## **Permit Conditions 4.5, 4.6, 4.8-4.15, and 4.22-4.28**

The facility is subject to 40 CFR 60 Subpart WWW - Standards of Performance for Municipal Solid Waste Landfills. Permit Conditions 4.5, 4.6, 4.8-4.15, and 4.22-4.28 include the requirements of this subpart which include MRRR. They are applicable requirements for Tier I operating permit in accordance with IDAPA 58.01.01.008.03. Detailed regulatory analysis can be found in Regulatory Review section of the SOB.

## **Permit Conditions 4.7 and 4.17,**

The facility is subject to 40 CFR 61 Subpart M - National Emission Standards for Asbestos. Permit Conditions 4.7 and 4.17 include the applicable operation and MRRR requirements of this subpart. They are applicable requirements for Tier I operating permit in accordance with IDAPA 58.01.01.008.03. Detailed regulatory analysis can be found in Regulatory Review section of this SOB.

### **Permit Conditions 4.16 and 4.29**

The facility is subject to 40 CFR 63 Subpart AAAA - National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills. Permit Conditions 4.16 and 4.29 include the operation and MRRR requirements of the subpart. They are applicable requirements for Tier I operating permit in accordance with IDAPA 58.01.01.008.03. Detailed regulatory analysis can be found in Regulatory Review section of this SOB.

### **Internal Combustion Engines**

#### **Permit Condition 5.4**

The permittee shall comply with the emissions limits for NO<sub>x</sub> and SO<sub>2</sub> in Permit Condition 5.4.

#### **MRRR**

##### **For NO<sub>x</sub> – (Permit Conditions 5.5 – 5.8)**

- Monitor hours of operation of each engine.
- Conduct initial performance tests on each engine and conduct subsequent performance testing every 8,760 hours of operation or 3 years, whichever comes first.
- Performance testing shall be conducted utilizing those methods and procedures specified in 40 CFR 60 Subpart JJJJ for NO<sub>x</sub> testing.
- Performance test results shall be submitted in accordance with the general provisions of this permit.

##### **For SO<sub>2</sub> – (Permit Conditions 4.4, 4.18, 4.19, 4.20, and 4.21)**

- The hydrogen sulfide concentration in the landfill gas being burned in the engines shall not exceed 150 ppmv.
- The permittee shall measure the H<sub>2</sub>S concentration, in ppmv, of the landfill gas stream prior to being combusted in the engines.
- The permittee shall follow H<sub>2</sub>S concentration monitoring schedule.
- The permittee shall follow H<sub>2</sub>S reporting requirement.

#### **Permit Conditions 5.9 and 5.10**

The permittee shall comply with the emissions limits for NO<sub>x</sub>, CO, and VOC in Permit Condition 5.9 over the entire life of the engines. The limits are taken from 40 CFR 60 Subpart JJJJ because the engines are subject to the subpart.

#### **MRRR– (Permit Conditions 5.12 – 5.15)**

The MRRR is specified in 40 CFR 60 Subpart JJJJ as summarized in the following:

- The permittee must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions.
- The permittee must conduct an initial performance test and conduct subsequent performance testing every 8,760 hours or 3 years, whichever comes first.
- The permittee shall conduct performance tests according the procedures in 40 CFR 60.4244 (a) through (f)
- Owners or operators of stationary SI ICE must meet the following notification, reporting and recordkeeping requirements in accordance with 40 CFR 60.4245.

- The permittee shall comply with the applicable general provisions of 40 CFR 60 Subpart A as specified in 40 CFR 60.4246.

### **6.3 General Provisions**

Unless expressly stated, there are no MRRR for the general provisions.

#### **General Compliance, Duty to Comply**

The permittee must comply with the terms and conditions of the permit.

[IDAPA 58.01.01.322.15.a, 5/1/94; 40 CFR 70.6(a)(6)(i)]

#### **General Compliance, Need to Halt or Reduce Activity Not a Defense**

The permittee cannot use the fact that it would have been necessary to halt or reduce an activity as a defense in an enforcement action.

[IDAPA 58.01.01.322.15.b, 5/1/94; 40 CFR 70.6(a)(6)(ii)]

#### **General Compliance, Duty to Supplement or Correct Application**

The permittee must promptly submit such supplementary facts or corrected information upon becoming aware that any relevant facts were omitted or incorrect information was submitted in the permit application. The permittee must also provide information as necessary to address any new requirements that become applicable after the date a complete application has been filed but prior to the release of a draft permit.

[IDAPA 58.01.01.315.01, 5/1/94; 40 CFR 70.5(b)]

#### **Reopening, Additional Requirements, Material Mistakes, Etc.**

This term lists the instances when the permit must be reopened and revised, including times when additional requirements become applicable, when the permit contains mistakes, or when revision or revocation is necessary to assure compliance with applicable requirements.

[IDAPA 58.01.01.322.15.c, 5/1/94; IDAPA 58.01.01.386, 3/19/99; 40 CFR 70.7(f)(1), (2); 40 CFR 70.6(a)(6)(iii)]

#### **Reopening, Permitting Actions**

This term discusses modification, revocation, reopening, and/or reissuance of the permit for cause. If the permittee files a request to modify, revoke, reissue, or terminate the permit, the request does not stay any permit condition, nor does notification of planned changes or anticipated noncompliance.

[IDAPA 58.01.01.322.15.d, 5/1/94; 40 CFR 70.6(a)(6)(iii)]

#### **Property Rights**

This permit does not convey any property rights of any sort, or any exclusive privilege.

[IDAPA 58.01.01.322.15.e, 5/1/94; 40 CFR 70.6(a)(6)(iv)]

#### **Information Requests**

The permittee must furnish, within a reasonable time to DEQ, any information, including records required by the permit, that is requested in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit.

[Idaho Code §39-108; IDAPA 58.01.01.122, 4/5/00; IDAPA 58.01.01.322.15.f, 4/5/00; 40 CFR 70.6(a)(6)(v)]

#### **Information Requests, Confidential Business Information**

Upon request, the permittee must furnish to DEQ copies of records required to be kept by this permit. For information claimed to be confidential, the permittee may furnish such records along with a claim of confidentiality in accordance with Idaho Code §9-342A and applicable implementing regulations including IDAPA 58.01.01.128.

[IDAPA 58.01.01.322.15.g, 5/1/94; IDAPA 58.01.01.128, 4/5/00; 40 CFR 70.6(a)(6)(v)]

## Severability

If any provision of the permit is held to be invalid, all unaffected provisions of the permit will remain in effect and enforceable.

[IDAPA 58.01.01.322.15.h, 5/1/94; 40 CFR 70.6(a)(5)]

## Changes Requiring Permit Revision or Notice

The permittee may not commence construction or modification of any stationary source, facility, major facility, or major modification without first obtaining all necessary permits to construct or an approval under IDAPA 58.01.01.213, or complying with IDAPA 58.01.01.220 through 223. The permittee must comply with IDAPA 58.01.01.380 through 386 as applicable.

[IDAPA 58.01.01.200-223, 4/2/08; IDAPA 58.01.01.322.15.i, 3/19/99; IDAPA 58.01.01.380-386, 7/1/02; 40 CFR 70.4(b)(12), (14), (15), and 70.7(d), (e)]

Changes that are not addressed or prohibited by the Tier I operating permit require a Tier I operating permit revision if such changes are subject to any requirement under Title IV of the CAA, 42 U.S.C. Section 7651 through 7651c, or are modifications under Title I of the CAA, 42 U.S.C. Section 7401 through 7515. Administrative amendments (IDAPA 58.01.01.381), minor permit modifications (IDAPA 58.01.01.383), and significant permit modifications (IDAPA 58.01.01.382) require a revision to the Tier I operating permit. IDAPA 58.01.01.502(b)(10) changes are authorized in accordance with IDAPA 58.01.01.384. Off permit changes and required notice are authorized in accordance with IDAPA 58.01.01.385.

[IDAPA 58.01.01.381-385, 7/1/02; IDAPA 58.01.01.209.05, 4/11/06; 40 CFR 70.4(b)(14) and (15)]

## Federal and State Enforceability

All permit conditions are federally enforceable unless specified in the permit as a state or local only requirement. State and local only requirements are not required under the CAA and are not enforceable by EPA or by citizens.

[IDAPA 58.01.01.322.15.j, 5/1/94; IDAPA 58.01.01.322.15.k, 3/23/98; Idaho Code §39-108; 40 CFR 70.6(b)(1), (2)]

## Inspection and Entry

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

- Enter upon the permittee's premises where a Tier I source is located or emissions related activity is conducted, or where records are kept under conditions of this permit;
- Have access to and copy, at reasonable times, any records that are kept under the conditions of this permit;
- Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit; and
- As authorized by the Idaho Environmental Protection and Health Act, sample or monitor, at reasonable times, substances or parameters for the purpose of determining or ensuring compliance with this permit or applicable requirements.

[Idaho Code §39-108; IDAPA 58.01.01.322.15.l, 5/1/94; 40 CFR 70.6(c)(2)]

## New Applicable Requirements

The permittee must continue to comply with all applicable requirements and must comply with new requirements on a timely basis.

[IDAPA 58.01.01.322.10, 4/5/00; IDAPA 58.01.01.314.10.a.ii, 5/1/94; 40 CFR 70.6(c)(3) citing 70.5(c)(8)]

## Fees

The owner or operator of a Tier I source shall pay annual registration fees to DEQ in accordance with IDAPA 58.01.01.387 through IDAPA 58.01.01.397.

[IDAPA 58.01.01.387, 4/2/03; 40 CFR 70.6(a)(7)]

## **Certification**

All documents submitted to DEQ shall be certified in accordance with IDAPA 58.01.01.123 and comply with IDAPA 58.01.01.124.

[IDAPA 58.01.01.322.15.o, 5/1/94; 40 CFR 70.6(a)(3)(iii)(A); 40 CFR 70.5(d)]

## **Renewal**

The permittee shall submit an application to DEQ for a renewal of this permit at least six months before, but no earlier than 18 months before, the expiration date of this operating permit. To ensure that the term of the operating permit does not expire before the permit is renewed, the owner or operator is encouraged to submit a renewal application nine months prior to the date of expiration.

[IDAPA 58.01.01.313.03, 4/5/00; 40 CFR 70.5(a)(1)(iii)]

If a timely and complete application for a Tier I operating permit renewal is submitted, but DEQ fails to issue or deny the renewal permit before the end of the term of this permit, then all the terms and conditions of this permit including any permit shield that may have been granted pursuant to IDAPA 58.01.01.325 shall remain in effect until the renewal permit has been issued or denied.

[IDAPA 58.01.01.322.15.p, 5/1/94; 40 CFR 70.7(b)]

## **Permit Shield**

Compliance with the terms and conditions of the Tier I operating permit, including those applicable to all alternative operating scenarios and trading scenarios, shall be deemed compliance with any applicable requirements as of the date of permit issuance, provided that:

- Such applicable requirements are included and are specifically identified in the Tier I operating permit; or
  - DEQ has determined that other requirements specifically identified are not applicable and all of the criteria set forth in IDAPA 58.01.01.325.01(b) have been met.
- The permit shield shall apply to permit revisions made in accordance with IDAPA 58.01.01.381.04 (administrative amendments incorporating the terms of a permit to construct), IDAPA 58.01.01.382.04 (significant modifications), and IDAPA 58.01.01.384.03 (trading under an emissions cap).
- Nothing in this permit shall alter or affect the following:
  - Any administrative authority or judicial remedy available to prevent or terminate emergencies or imminent and substantial dangers;
  - The liability of an owner or operator of a source for any violation of applicable requirements prior to or at the time of permit issuance;
  - The applicable requirements of the acid rain program, consistent with 42 U.S.C. Section 7651(g)(a); and
  - The ability of EPA to obtain information from a source pursuant to Section 114 of the CAA; or the ability of DEQ to obtain information from a source pursuant to Idaho Code §39-108 and IDAPA 58.01.01.122.

[Idaho Code §39-108 and 112; IDAPA 58.01.01.122, 4/5/00;  
IDAPA 58.01.01.322.15.m, 325.01, 5/1/94; IDAPA 58.01.01.325.02, 3/19/99;  
IDAPA 58.01.01.381.04, 382.04, 383.05, 384.03, 385.03, 3/19/99; 40 CFR 70.6(f)]

## **Compliance Schedule and Progress Reports**

- For each applicable requirement for which the source is not in compliance, the permittee shall comply with the compliance schedule incorporated in this permit.
- For each applicable requirement that will become effective during the term of this permit and that provides a detailed compliance schedule, the permittee shall comply with such requirements in accordance with the detailed schedule.

- For each applicable requirement that will become effective during the term of this permit that does not contain a more detailed schedule, the permittee shall meet such requirements on a timely basis.
- For each applicable requirement with which the permittee is in compliance, the permittee shall continue to comply with such requirements.  
[IDAPA 58.01.01.322.10, 4/5/00; IDAPA 58.01.01.314.9, 5/1/94; IDAPA 58.01.01.314.10, 4/5/00; 40 CFR 70.6(c)(3) and (4)]

### **Periodic Compliance Certification**

The permittee shall submit compliance certifications during the term of the permit for each emissions unit to DEQ and the EPA as specified.

- Compliance certifications for all emissions units shall be submitted annually unless otherwise specified;
- All original compliance certifications shall be submitted to DEQ and a copy of all compliance certifications shall be submitted to the EPA.

[IDAPA 58.01.01.322.11, 4/6/05; 40 CFR 70.6(c)(5)(iii) as amended, 62 Fed. Reg. 54900, 54946 (10/22/97); 40 CFR 70.6(c)(5)(iv)]

### **False Statements**

The permittee may not make any false statement, representation, or certification in any form, notice, or report required under this permit, or any applicable rule or order in force pursuant thereto.

[IDAPA 58.01.01.125, 3/23/98]

### **No Tampering**

The permittee may not render inaccurate any monitoring device or method required under this permit or any applicable rule or order in force pursuant thereto.

[IDAPA 58.01.01.126, 3/23/98]

### **Semiannual Monitoring Reports.**

In addition to all applicable reporting requirements identified in this permit, the permittee shall submit reports of any required monitoring at least every six months as specified.

[IDAPA 58.01.01.322.15.q, 3/23/98; IDAPA 58.01.01.322.08.c, 4/5/00; 40 CFR 70.6(a)(3)(iii)]

### **Reporting Deviations and Excess Emissions**

Each and every applicable requirement, including MRRR, is subject to prompt deviation reporting. Deviations due to excess emissions must be reported in accordance Sections 130-136. All instances of deviation from Tier I operating permit requirements must be included in the deviation reports. The reports must describe the probable cause of the deviation and any corrective action or preventative measures taken. Deviation reports must be submitted at least every six months unless the permit specifies a different time period as required by IDAPA 58.01.01.322.08.c. Examples of deviations include, but are not limited to, the following:

- Any situation in which an emissions unit fails to meet a permit term or condition
- Emission control device does not meet a required operating condition
- Observations or collected data that demonstrate noncompliance with an emissions standard
- Failure to comply with a permit term that requires a report

[IDAPA 58.01.01.322.15.q, 3/23/98; IDAPA 58.01.01.135, 4/11/06; 40 CFR 70.6(a)(3)(iii)]

### **Permit Revision Not Required, Emissions Trading**

No permit revision will be required, under any approved, economic incentives, marketable permits, emissions trading, and other similar programs or processes, for changes that are provided for in the permit.

[IDAPA 58.01.01.322.05.b, 4/5/00; 40 CFR 70.6(a)(8)]

**Emergency**

In accordance with IDAPA 58.01.01.332, an “emergency” as defined in IDAPA 58.01.01.008, constitutes an affirmative defense to an action brought for noncompliance with such technology-based emissions limitation if the conditions of IDAPA 58.01.01.332.02 are met.

[IDAPA 58.01.01.332.01, 4/5/00; 40 CFR 70.6(g)]

**7. REGULATORY REVIEW**

**7.1 Attainment Designation (40 CFR 81.313)**

The facility is located in Cassia County which is designated as attainment or unclassifiable for PM<sub>10</sub>, PM<sub>2.5</sub>, CO, NO<sub>2</sub>, SO<sub>x</sub>, and Ozone. Reference 40 CFR 81.313.

**7.2 Title V Classification (IDAPA 58.01.01.300, 40 CFR Part 70)**

IDAPA 58.01.01.301 ..... Requirement to Obtain Tier I Operating Permit

The facility is subject to Tier I permitting as detailed in the Statement of Basis for the initial T1 operating permit No. T1-2011.0076 issued on April 24, 2012 (2012AAG1044). Even though this source is a minor source, in accordance with IDAPA 58.01.01.859.04.c, the facility “...must submit a complete Federal Operating Permit application within one year of becoming subject to this requirement.” The facility became subject to this requirement with the promulgation of the NSPS Subpart WWW on March 16, 1996 and subsequent design capacity report submittal required by June 10, 1996. The facility applied for and was issued an initial Tier I operating permit. This permitting action is for the renewal of the initial operating permit.

**7.3 PSD Classification (40 CFR 52.21)**

40 CFR 52.21 ..... Prevention of Significant Deterioration of Air Quality

The facility is not a major stationary source as defined in 40 CFR 52.21(b)(1), nor is it undergoing any physical change at a stationary source not otherwise qualifying under paragraph 40 CFR 52.21(b)(1) as a major stationary source, that would constitute a major stationary source by itself as defined in 40 CFR 52.21(b)(1). Therefore, in accordance with 40 CFR 52.21(a)(2), PSD requirements are not applicable to this permitting action. The facility is not a designated facility as defined in 40 CFR 52.21(b)(1)(i)(a) and does not have facility-wide emissions of any criteria pollutant that exceed 250 T/yr.

**7.4 NSPS Applicability (40 CFR 60)**

40 CFR 60, Subpart WWW ..... Standards of Performance for Municipal Solid Waste Landfills

DEQ is delegated this Subpart. The applicant has been subject to this subpart.

Except for one new requirement, all other applicable provisions remain unchanged from the previous permitting action and were discussed in the SOB for the initial Tier I operating permit issued on April 24, 2012 (2012AAG1044). The one new requirement has been included in the recent issued underlying PTC No. P-2011.0054 project 61834 issued July 28, 2017. The new requirement is to treat the landfill gases prior to sale or use in accordance with 40 CFR 60.752(b)(2)(iii)(C).

40 CFR 60.752(b)(2)(iii) specifies source shall route all the collected gas to a control system that complies with the requirements in either 40 CFR 60.752(b)(2)(iii) (A), (B) or (C) of this section.

(A) An open flare designed and operated in accordance with 40 CFR 60.18 except as noted in 40 CFR 60.754(e);

Milner Butte has not elected to use this option to comply with the NSPS.

(B) A control system designed and operated to reduce NMOC by 98 weight-percent, or, when an enclosed combustion device is used for control, to either reduce NMOC by 98 weight percent or reduce the outlet NMOC concentration to less than 20 parts per million by volume, dry basis as hexane at 3 percent

oxygen. The reduction efficiency or parts per million by volume shall be established by an initial performance test to be completed no later than 180 days after the initial startup of the approved control system using the test methods specified in 40 CFR 60.754(d).

(1) If a boiler or process heater is used as the control device, the landfill gas stream shall be introduced into the flame zone.

(2) The control device shall be operated within the parameter ranges established during the initial or most recent performance test. The operating parameters to be monitored are specified in 40 CFR 60.756;

This is one of the two options Milner Butte has elected to comply with.

(C) Route the collected gas to a treatment system that processes the collected gas for subsequent sale or use. All emissions from any atmospheric vent from the gas treatment system shall be subject to the requirements of 40 CFR 60.752 (b)(2)(iii) (A) or (B).

This is also an option that the facility has chosen to comply with the NSPS requirements.

40 CFR 60, Subpart Cf..... Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills

AND

40 CFR 60, Subpart XXX ..... Standards of Performance for Municipal Solid Waste Landfills That Commenced Construction, Reconstruction, or Modification after July 17, 2014

The new version of the NSPS for Municipal Solid Waste Landfills, 40 CFR 60, Subpart XXX and the new Existing Guideline rule under 40 CFR Part 60, Subpart Cf were issued by the EPA on August 28, 2016.

MBL was initially subject to NSPS, Part 60, Subpart WWW, because the site has over 2.5 million megagrams (Mg) of waste-in-place and had a landfill capacity expansion after May 30, 1991. MBL has a landfill gas collection and GCCS that is also subject to the full NSPS requirements because the non-methane organic compound emissions were previously calculated to be over 50 Mg/year.

However, under the new NSPS regulations for landfills, MBL is considered an “existing” landfill because the site has not had a landfill design capacity expansion on or after July 17, 2014; and is therefore subject to Subpart Cf, opposed to XXX. Although Subpart XXX officially went into effect on October 28, 2016, MBL is not subject to that regulation as noted. Furthermore, for sites that are subject to Subpart Cf (existing sites), such as MBL, that regulation will not go into effect until the U.S. Environmental Protection Agency approves the designated air agency’s Existing Guideline Rule. Therefore, MBL will not be subject to Subpart Cf until the DEQ’s proposed Existing Guideline Rule is completed, then submitted to and approved by the EPA. In the meantime, MBL is still subject to WWW as discussed in this section.

40 CFR 60, Subpart JJJJ.....Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

DEQ is delegated this Subpart.

The applicant is subject to this subpart. A detailed regulatory review of this subpart is provided in Appendix B of this SOB. In short, the engines have carbon monoxide, nitrogen oxide and VOC emissions standards (40 CFR 60 Subpart JJJJ Table 1); an initial performance test must be conducted (within 180 days of startup); and then tests are required every 8,760 hours or 3 years, whichever comes first, and thereafter to demonstrate compliance.

Non-applicable

40 CFR 60, Subpart Cc ..... Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills

§ 60.30c *Scope.*

*This subpart contains emission guidelines and compliance times for the control of certain designated pollutants from certain designated municipal solid waste landfills in accordance with section 111(d) of the Act and subpart B.*

....

§ 60.32c *Designated facilities.*

*(a) The designated facility to which the guidelines apply is each existing MSW landfill for which construction, reconstruction or modification was commenced before May 30, 1991.*

This facility was constructed in 1993, which is after May 30, 1991, so this subpart does not apply.

**7.5 NESHAP Applicability (40 CFR 61 & 63)**

This permit renewal does not alter the applicability status for any existing NESHAP affected sources at the facility. Regulatory analyses for the applicable subparts are available at the SOB for the initial Tier I operating permit issued on April 24, 2012. (2012AAG1044).

40 CFR 61, Subpart M ..... National Emission Standard for Asbestos

There have been no revisions made to 40 CFR Part 61, Subpart M since the initial Tier I operating permit was issued in 2012. The most recent revision date noted in this Subpart is 2004. DEQ is delegated this Subpart.

40 CFR 63, Subpart AAAA ..... National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills

There have been no revisions made to 40 CFR Part 63, Subpart AAAA since the initial Tier I operating - permit was issued in 2012. The most recent revision date noted in this Subpart is 2006. DEQ is delegated this Subpart.

40 CFR 63, Subpart ZZZZ ..... National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

The facility complies with 40 CFR 63, Subpart ZZZZ by complying with 40 CFR 60, Subpart JJJJ for the generator engines in accordance with 40 CFR 63.6590(c).

**7.6 CAM Applicability (40 CFR 64)**

40 CFR 64 ..... Compliance Assurance Monitoring

*64.2(b) Exemptions —(1) Exempt emission limitations or standards. The requirements of this part shall not apply to any of the following emission limitations or standards:*

*(i) Emission limitations or standards proposed by the Administrator after November 15, 1990 pursuant to section 111 or 112 of the Act.*

The flares at the landfill are not subject to “Compliance Assurance Monitoring” (CAM) Rule at 40 CFR Part 64. As per this regulation, emission limitations or standards proposed after November 15, 1990, pursuant to Clean Air Act section 111 or 112 are exempt from CAM (40 CFR §64.2(b)(1)). All applicable monitoring requirements from 40 CFR 60, Subpart WWW have been included in the permit. Since 40 CFR 60, Subpart WWW was promulgated on March 1996 under the authority of Clean Air Act Section 111 for (NSPS), this standard is exempt from CAM requirements and no additional monitoring has been incorporated into the permit.

In accordance with 40 CFR 64.2(2), the engines are not subject to CAM as they do not use control devices to achieve compliance with any emission limitation or standard.

**7.7 Acid Rain Permit (40 CFR 72-75)**

The landfill is not subject to any of the source categories under regulation 40 CFR 72-75.

**8. PUBLIC COMMENT**

As required by IDAPA 58.01.01.364, a public comment period will be made available to the public.

**9. EPA REVIEW OF PROPOSED PERMIT**

As required by IDAPA 58.01.01.366, DEQ provided the proposed permit to EPA Region 10 for its review and comment on March 8, 2018 via e-mail. On March 8, 2018, EPA Region 10 responded to DEQ via e-mail indicating that EPA did not plan to review the proposed permit action and would not object to its issuance and that the permit is now eligible for issuance.

## **Appendix A – Emissions Inventory**

(Point source EI is taken from the EI for PTC No. P-2011.0054 project 61834 issued on July 28, 2017;  
fugitive source EI is taken from the EI in the Tier I renewal application)

2016 Application for New PTC 2 new engines, existing enclosed flare		Post-Project Potential to Emit for NSR Regulated Pollutants							
Emissions Unit	Description	PM tpy	PM-10 tpy	PM-2.5 tpy	SO2 tpy	NO2 tpy	CO tpy	Pb tpy	O3 (by VOC) tpy
<b>Point Sources</b>									
F1	Enclosed Flare at PTE	1.161E+00	1.161E+00	1.161E+00	4.302E+00	3.019E+00	3.561E+00	8.773E-05	1.421E+00
G1	New Dresser HGM 560 Engine	4.877E-01	4.877E-01	4.877E-01	2.681E+00	2.097E+01	4.614E+01	0.000E+00	1.468E+01
G2	New Dresser HGM 560 Engine	4.877E-01	4.877E-01	4.877E-01	2.681E+00	2.097E+01	4.614E+01	0.000E+00	1.468E+01
H1	Existing LPG Radiant Heat	4.883E-03	4.883E-03	4.883E-03	7.180E-04	9.334E-02	5.385E-02	3.221E-07	3.590E-03
H2	Existing Used Oil Unit Heat	3.794E-01	3.277E-01	3.277E-01	3.925E-01	1.752E-01	2.300E-02	2.727E-03	1.095E-02
H3	Existing Used Oil Unit Heat	3.794E-01	3.277E-01	3.277E-01	3.925E-01	1.752E-01	2.300E-02	2.727E-03	1.095E-02
H4	Existing LPG Radiant Heat	4.883E-03	4.883E-03	4.883E-03	7.180E-04	9.334E-02	5.385E-02	3.221E-07	3.590E-03
	Portable 700 hp diesel-powered grinder	0.01	0.01	0.01	0.01	0.35	0.2	NA	0.02
	<b>TOTAL</b>	<b>2.92</b>	<b>2.81</b>	<b>2.81</b>	<b>10.46</b>	<b>45.85</b>	<b>96.20</b>	<b>0.01</b>	<b>30.83</b>
2016 Application for New PTC 2 new engines, existing enclosed flare		<b>Pre-Project Potential to Emit for NSR Regulated Pollutants</b>							
Emissions Unit	Description	PM tpy	PM-10 tpy	PM-2.5 tpy	SO2 tpy	NOx tpy	CO tpy	Pb tpy	O3 (by VOC) tpy
<b>Point Sources</b>									
F1	Existing Enclosed Flare	3.290E+00	3.290E+00	3.290E+00	5.150E+01	1.183E+01	3.942E+01	0.000E+00	8.300E-01
G1	New Dresser HGM 560 Engine								
G2	New Dresser HGM 560 Engine								
H1	Existing LPG Radiant Heat	4.883E-03	4.883E-03	4.883E-03	7.180E-04	9.334E-02	5.385E-02	3.221E-07	3.590E-03
H2	Existing Used Oil Unit Heat	3.794E-01	3.277E-01	3.277E-01	3.925E-01	1.752E-01	2.300E-02	2.727E-03	1.095E-02
H3	Existing Used Oil Unit Heat	3.794E-01	3.277E-01	3.277E-01	3.925E-01	1.752E-01	2.300E-02	2.727E-03	1.095E-02
H4	Existing LPG Radiant Heat	4.883E-03	4.883E-03	4.883E-03	7.180E-04	9.334E-02	5.385E-02	3.221E-07	3.590E-03
	Portable 700 hp diesel-powered grinder	0.01	0.01	0.01	0.01	0.35	0.2	NA	0.02
	<b>TOTAL</b>	<b>4.07</b>	<b>3.97</b>	<b>3.97</b>	<b>52.30</b>	<b>12.72</b>	<b>39.77</b>	<b>0.01</b>	<b>0.88</b>

Source F1 Existing SISW MBL Enclosed LFG Flare CRITERIA POLLUTANT EMISSION RATES									
Combustion Source Characteristics					Stack Data		Plot Plan Key " "		
Flare Manufacturer	Perennial Energy, Inc.				Stack Height (ft)	28	8.5344	m	
Model	FL114-32-E				Stack Diameter (ft)	8.82	2.688336	m	
Input Heat Capacity (BTU/hr)	18,027,040				Avg Exit Gas Temperature (°F)	1000			
Fuel	LFG from SISW MBL				Exit Gas Moisture Content				
Max Year Fuel Available					Wet Actual Flow Rate (wacf/min)	69429	32.76683903		
					Wet Standard Flow Rate (wscf/min)	22575			
Heating Value (BTU/scf)	450				Dry Standard Flow Rate (dscf/min)				
Fuel Consumption (scf/hr) (scfm LFG)	40,060		668		Stack Velocity (m/s)	5.83			
	17,674		scf CH4/hr		F <sub>d</sub> (dscf stack gas/BTU)				
			1020 CH4 Btu/scf		F <sub>w</sub> (wscf stack gas/BTU)	UTM East		UTM North	
<b>Process Characteristics</b>									
Total PM Emission Rate (lb/hr)	0.265				<b>Site Information</b>			756584	4705808
PM2.5 Emission Rate (lb/hr)	0.265				Site Barometric Pressure (mm Hg)				
	% Methane 0.50				25.08				
Actual Hours of Operation (hr/yr)	8,760				Site Grade				
	Annual Availability 1.00				4790 ft MSL				
					1337.4 m MSL				
Criteria Pollutants									
Pollutant	Pollutant Source	Emission Factor <sup>a,b</sup>	Emission Factor Unit	Emissions (lb/hr)	Emissions (TPY)	Emissions (g/s)	Significant Level <sup>c</sup>	Regulatory Concern? <sup>d</sup>	Contribution ? <sup>c</sup>
PM <sub>10</sub>	LFG Combustion	15	lb/10 <sup>6</sup> scf CH4	0.265	1.161E+00	3.340E-02	15	yes	no
PM <sub>25</sub>	LFG Combustion	15	lb/10 <sup>6</sup> scf CH4	0.265	1.161E+00	3.340E-02	15	yes	no
SO <sub>2</sub>	LFG Combustion		see SO2 tab	0.982	4.302E+00	1.238E-01	40	no	no
NO <sub>2</sub>	LFG Combustion	39	lb/10 <sup>6</sup> scf CH4	0.689	3.019E+00	8.685E-02	40	yes	no
CO	LFG Combustion	46	lb/10 <sup>6</sup> scf CH4	0.813	3.561E+00	1.024E-01	100	yes	no
VOC	LFG Combustion	Use §585	Use §585	0.324	1.421E+00	4.089E-02	40	yes	no
Lead	LFG Combustion	0.0005	lb/10 <sup>6</sup> scf	0.000	8.773E-05	2.524E-06	0.6	yes	no
				0.265	PM25 Annual	3.340E-02			
				0.689	NOx Annual	8.685E-02			
Non-Criteria Pollutants with Significant Threshold									
Pollutant	Pollutant Source	Emission Factor <sup>a,b</sup>	Emission Factor Unit	Potential Emissions (lb/hr)	Potential Emissions (TPY)	Potential Emissions (g/s)	Significant Level <sup>c</sup> (TPY)	Below Regulatory Concern? <sup>d</sup>	Significant Contribution ? <sup>c</sup>
PM	LFG Combust	15	lb/10 <sup>6</sup> scf CH4	0.265	1.161	3.340E-02	25	yes	no
Other Pollutants									
Pollutant	Pollutant Source	Emission Factor <sup>a</sup>	Emission Factor Unit	Potential Emissions (lb/hr)	Potential Emissions (TPY)	Potential Emissions (g/s)	CO2e Multiplier	Potential Emissions (TPY CO2e)	
TOC	LFG Combust	11	lb/10 <sup>6</sup> scf CH4	0.194	0.852	2.450E-02	0.0	0	
Methane	LFG Combust	2.3	lb/10 <sup>6</sup> scf CH4	0.041	0.178	5.122E-03	25.0	4	
CO <sub>2</sub>	LFG Combust	120,000	lb/10 <sup>6</sup> scf CH4	2120.828	9289.228	2.672E+02	1.0	9289	
N <sub>2</sub> O	LFG Combust	2.2	lb/10 <sup>6</sup> scf CH4	0.039	0.170	4.899E-03	298.0	51	
								9344.429	
Process Weight Rule - Not Applicable <sup>e</sup>									
PM Grain Loading Standard <sup>f</sup>									
Pollutant	Pollutant Source	Potential Emissions (lb/hr)	Potential Emissions (gr/dscf)	Allowable Emissions (gr/dscf)	Meets Standard?	gr/hr			
PM	LFG Combust	0.234	< 0.01	0.015	yes	1638			
			0.006178718						
Notes:									
(a) Emission factors for other pollutants from AP-42 Table 2.4-4 [biogas flare wrt NO2, CO, PM] and Table 13.5-2 [flare wrt VOC]									
(b) 100% of particulate emissions assumed to be PM-2.5									
(c) IDAPA 58.01.01.006.106									
(d) IDAPA 58.01.01.221.01 (less than ten percent (10%) of the significant emission rates) = No PTC is Required for this source									
(e) IDAPA 58.01.01.701.02									
(f) IDAPA 58.01.01.676									
** NA - Not Applicable									

Source F1 Existing SISW MBL Enclosed LFG Flare TAPs EMISSION RATES							
Idaho Toxic Air Pollutants -- Carcinogenic							
1,1,2,2-Tetrachloroethane c	5.35E-01	4.691E+00	4.05E-04	5.10E-05	1.100E-05	1	
1,1,2,3,4,4-Hexachloro-1,3-butadiene (Hexachl	3.49E-03	3.060E-02	4.10E-06	5.17E-07	3.300E-04	0	
1,1,2-Trichloroethane c	1.58E-01	1.385E+00	9.50E-05	1.20E-05	4.200E-04	0	
1,1-Dichloroethane c	2.08E+00	1.824E+01	9.28E-04	1.17E-04	2.500E-04	1	
1,1-Dichloroethene (1,1-Dichloroethylene) c	1.60E-01	1.403E+00	6.99E-05	8.81E-06	1.300E-04	0	
1,2-Dibromoethane (Ethylene dibromide) c	4.80E-03	4.209E-02	4.07E-06	5.12E-07	3.000E-05	0	
1,2-Dichloroethane (Ethylene dichloride) c	1.59E-01	1.394E+00	7.10E-05	8.94E-06	2.500E-04	0	
1,3-Butadiene (Vinyl ethylene) c	1.66E-01	1.455E+00	4.05E-05	5.10E-06	2.400E-05	1	
1,4-Dioxane (1,4-Diethylene dioxide) c	8.29E-03	7.269E-02	3.29E-06	4.15E-07	4.800E-03	0	
Acetaldehyde c	7.74E-02	6.786E-01	1.54E-05	1.94E-06	3.000E-03	0	
Acrylonitrile c,d	BDL	0.000E+00	0.00E+00	0.00E+00	9.800E-05	0	
Benzene c	2.40E+00	2.104E+01	8.45E-04	1.07E-04	8.000E-04	1	
Carbon tetrachloride c	7.98E-03	6.997E-02	5.54E-06	6.97E-07	4.400E-04	0	
Chloromethane (Methyl chloride) c	2.44E-01	2.139E+00	5.56E-05	7.00E-06	1.900E-03	0	
Dichloromethane (Methylene chloride) c	6.15E+00	5.392E+01	2.36E-03	2.97E-04	1.600E-03	1	
Formaldehyde c	1.17E-02	1.026E-01	1.58E-06	2.00E-07	5.100E-04	0	
Tetrachloroethylene (Perchloroethylene) c	2.03E+00	1.780E+01	1.52E-03	1.91E-04	1.300E-02	0	
Trichloroethylene (Trichloroethene) c	8.28E-01	7.260E+00	4.91E-04	6.18E-05	5.100E-04	0	
Trichloromethane (Chloroform) c	7.08E-02	6.208E-01	3.81E-05	4.80E-06	2.800E-04	0	
Vinyl chloride (Chloroethene) c	1.42E+00	1.245E+01	4.00E-04	5.04E-05	9.400E-04	0	
				q/sec			10/20
			2.34E-01	TOTAL TAPs (tpy)			
Source F1 Existing SISW MBL Enclosed LFG Flare HAPs EMISSION RATES							
Federal Hazardous Air Pollutants							
Pollutant	Concentration in LFG [ppmv]	* LFG flow at 25C { m3/yr }	Potential Emissions [95% control] (lb/hr)	Potential Emissions (g/s)	Emission Limitb (lb/hr)	Modeling Required?c [0= No Modeling ]	EPA Listed HAPs
1,1,1-Trichloroethane c	2.43E-01	2.131E+00	1.46E-04	1.84E-05	unk	0	
1,1,2,2-Tetrachloroethane c	5.35E-01	4.691E+00	4.05E-04	5.10E-05	1.100E-05	1	
1,1,2,3,4,4-Hexachloro-1,3-butadiene (Hexachl	3.49E-03	3.060E-02	4.10E-06	5.17E-07	3.300E-04	0	
1,1,2-Trichloroethane c	1.58E-01	1.385E+00	9.50E-05	1.20E-05	4.200E-04	0	
1,1-Dichloroethane c	2.08E+00	1.824E+01	9.28E-04	1.17E-04	2.500E-04	1	
1,1-Dichloroethene (1,1-Dichloroethylene) c	1.60E-01	1.403E+00	6.99E-05	8.81E-06	1.300E-04	0	
1,2,4-Trichlorobenzene c	5.51E-03	4.831E-02	4.51E-06	5.68E-07	2.470E+00	0	
1,2-Dibromoethane (Ethylene dibromide) c	4.80E-03	4.209E-02	4.07E-06	5.12E-07	3.000E-05	0	
1,2-Dichloroethane (Ethylene dichloride) c	1.59E-01	1.394E+00	7.10E-05	8.94E-06	2.500E-04	0	
1,2-Dichloropropane c	5.20E-02	4.559E-01	2.65E-05	3.34E-06	2.313E+01	0	
1,3-Butadiene (Vinyl ethylene) c	1.66E-01	1.455E+00	4.05E-05	5.10E-06	2.400E-05	1	
1,4-Dioxane (1,4-Diethylene dioxide) c	8.29E-03	7.269E-02	3.29E-06	4.15E-07	4.800E-03	0	
2,2,4-Trimethylpentane c	1.37E+00	1.201E+01	7.42E-04	9.36E-05	8.200E+00	0	
2-Butanone (Methyl ethyl ketone) (d)							
4-Methyl-2-pentanone (MIBK) c	8.83E-01	7.742E+00	3.99E-04	5.02E-05	unk	0	
Acetaldehyde c	7.74E-02	6.786E-01	1.54E-05	1.94E-06	3.000E-03	0	
Acetonitrile c	5.56E-01	4.875E+00	1.03E-04	1.30E-05	4.470E+00	0	
Acrylonitrile c,d	0.00E+00	0.000E+00	0.00E+00	0.00E+00	9.800E-05	0	
Benzyl chloride c	1.81E-02	1.587E-01	1.03E-05	1.30E-06	unk	0	
Bromomethane (Methyl bromide) c	2.10E-02	1.841E-01	8.99E-06	1.13E-06	1.270E+00	0	
Carbon disulfide c	1.47E-01	1.289E+00	5.05E-05	6.36E-06	2.000E+00	0	
Carbon tetrachloride c	7.98E-03	6.997E-02	5.54E-06	6.97E-07	4.400E-04	0	
Carbonyl sulfide (Carbon oxy sulfide) c	1.22E-01	1.070E+00	3.31E-05	4.16E-06	2.700E-02	0	
Chlorodifluoromethane (Freon 22) c	7.96E-01	6.979E+00	3.10E-04	3.91E-05	unk	0	
Chloroethane (Ethyl chloride) c	3.95E+00	3.463E+01	1.15E-03	1.45E-04	1.760E+02	0	
Chloromethane (Methyl chloride) c	2.44E-01	2.139E+00	5.56E-05	7.00E-06	1.900E-03	0	
Dichloromethane (Methylene chloride) c	6.15E+00	5.392E+01	2.36E-03	2.97E-04	1.600E-03	1	
Ethylbenzene c	4.86E+00	4.261E+01	2.33E-03	2.93E-04	2.900E+01	0	
Isopropylbenzene (Cumene) c	4.30E-01	3.770E+00	2.33E-04	2.94E-05	1.630E+01	0	
Mercury (total) c	1.22E-04	1.070E-03	2.21E-06	2.78E-07	3.000E-03	0	
Styrene (Vinylbenzene) c	4.11E-01	3.604E+00	1.93E-04	2.43E-05	6.670E+00	0	
Tetrachloroethylene (Perchloroethylene) c	2.03E+00	1.780E+01	1.52E-03	1.91E-04	1.300E-02	0	
Tribromomethane (Bromoform) c	1.24E-02	1.087E-01	1.41E-05	1.78E-06	3.330E-01	0	
Trichloroethylene (Trichloroethene) c	8.28E-01	7.260E+00	4.91E-04	6.18E-05	1.793E+01	0	
Trichloromethane (Chloroform) c	7.08E-02	6.208E-01	3.81E-05	4.80E-06	2.800E-04	0	
Vinyl acetate c	1.42E+00	1.245E+01	4.00E-04	5.04E-05	9.400E-04	0	
Vinyl chloride (Chloroethene) c	1.42E+00	1.245E+01	4.00E-04	5.04E-05	9.400E-04	0	
1,4-Dichlorobenzene c,e	9.40E-01	8.242E+00	6.23E-04	7.85E-05	3.000E+01	0	
Formaldehyde c	1.17E-02	1.026E-01	1.58E-06	2.00E-07	5.100E-04	0	
Benzene c	2.40E+00	2.104E+01	8.45E-04	1.07E-04	8.000E-04	1	
Hexane c	3.10E+00	2.718E+01	1.20E-03	1.52E-04	1.200E+01	0	
Naphthalene c	1.07E-01	9.382E-01	6.18E-05	7.79E-06	3.330E+00	0	
Toluene (Methyl benzene) c	2.95E+01	2.587E+02	1.23E-02	1.54E-03	2.500E+01	0	
			1.21E-01	TOTAL HAPs (tpy)			
Notes:							
(a) Emission Factors from AP-42 Chapter 2.4, "Municipal Solid Waste Landfills", Table 2.4-1.							
(b) IDAPA 58.01.01.585 and 586							
(c) IDAPA 58.01.01.210.05(b)							
(d) 2-Butanone (Methyl ethyl ketone) removed from Fed HAPs list 70 FR 75047							
* FNA = Factor Not Available * BDL = Below Detection Limits							

Source G1 SISW MBL Dresser HGM560 at 100% Power per OEM Data CRITERIA POLLUTANT EMISSION RATES									
<b>Combustion Source Characteristics</b>			<b>Stack Data</b>			Plot Plan Key "1"			
Engine	DresserRand Guascor		Stack Height (ft)	35	10.67	m			
Model	HGM 560		Stack Diameter (ft)	1.33	0.41	m			
Input Heat Capacity (BTU/hr) ( annual bhp-hr)	11,236,480	15,855,600	Exit Gas Temperature (°F)	700	644	K			
Fuel	Landfill Gas scfm 416		Exit Gas Moisture Content						
Heating Value (BTU/scf) (Btu/bhphr)	450	6208	Wet Actual Flow Rate (wactf/min)			9218	260.87	m3/min	
Fuel Consumption (scf/hr) [m3/hr]	24,970	707.1	Wet Standard Flow Rate (wscf/min)			4.35 m3/sec			
Engine Power (100% Spec Sheet bhp@ 1640 ft)	1810		Dry Standard Flow Rate (dscf/min)						
<b>Process Characteristics</b>			Stack Velocity (m/s)			33.69			
	2		Fd (dscf stack gas/8TU)						
m3 LFG used/yr	3	6193937	1 Fw (wscf stack gas/8TU)			UTM East	UTM North		
						m	m		
Actual Hours of Operation (hr/yr)	8,322	8760	<b>Site Information</b>			746274	4705910		
Annual Availability	95%		Site Barometric Pressure (mm Hg)			25.08		0.28 of LFG collection	
% Methane	0.50		Site Grade			ft MSL 4390			
Destruction Efficiency	0.95								
<b>Criteria Pollutants</b>									
Pollutant	Pollutant Source	Emission Factor <sup>a,b</sup>	Emission Factor Unit	Potential Emissions (lb/hr)	Potential Emissions (TPY)	Potential Emissions (g/s)	Significant Level <sup>c</sup> (TPY)	Below Regulatory Concern? <sup>d</sup>	Significant Contribution? <sup>e</sup>
PM <sub>10</sub>	LFG Combustion	9.91E-03	lb/10E6 Btu	1.11E-01	4.877E-01	1.403E-02	15	yes	no
PM <sub>2.5</sub>	LFG Combustion	9.91E-03	lb/10E6 Btu	1.11E-01	4.877E-01	1.403E-02	15	yes	no
SO <sub>2</sub>	LFG Combustion		see SO <sub>2</sub> lab	8.12E-01	2.681E+00	7.715E-02	40	yes	no
NO <sub>x</sub>	LFG Combustion	1.20E+00	g/hp-hr	4.79E+00	2.097E+01	6.033E-01	40	no	no
CO	LFG Combustion	2.64E+00	g/hp-hr	1.05E+01	4.614E+01	1.327E+00	100	no	no
VOC	LFG Combustion	8.40E-01	g/hp-hr	3.35E+00	1.468E+01	4.223E-01	40	no	no
Lead	LFG Combustion		lb/10 <sup>6</sup> Btu	0.00E+00	0.000E+00	0.000E+00	0.6	yes	no
				1.11E-01	<b>PM<sub>2.5</sub> Ann</b>	<b>1.40E-02</b>			
				4.79E+00	<b>NO<sub>x</sub> Annual</b>	<b>6.03E-01</b>			
<b>Non-Criteria Pollutants with Significant Threshold</b>									
Pollutant	Pollutant Source	Emission Factor <sup>a,b</sup>	Emission Factor Unit	Potential Emissions (lb/hr)	Potential Emissions (TPY)	Potential Emissions (g/s)	Significant Level <sup>c</sup> (TPY)	Below Regulatory Concern? <sup>d</sup>	Significant Contribution? <sup>e</sup>
PM	LFG Combustion	9.91E-03	lb/10E6 Btu	1.11E-01	4.877E-01	1.403E-02	25	yes	no
<b>Other Pollutants</b>									
Pollutant	Pollutant Source	Emission Factor <sup>a</sup>	Emission Factor Unit	Potential Emissions (lb/hr)	Potential Emissions (TPY)	Potential Emissions (g/s)	CO <sub>2</sub> e Multiplier	Emissions (TPY CO <sub>2</sub> e)	
TOC	LFG Combustion	1.47	lb/10 <sup>6</sup> Btu	1.65E+01	68.730	2.081E+00	0.0	0	
Methane	LFG Combustion	1.25	lb/10 <sup>6</sup> Btu	1.40E+01	58.444	1.770E+00	25.0	1461	
CO <sub>2</sub>	LFG Combustion	120,000	lb/10 <sup>6</sup> scf	3.00E+03	12467.998	3.775E+02	1.0	12468	
N <sub>2</sub> O	LFG Combustion	2.2	lb/10 <sup>6</sup> scf	5.49E-02	0.229	6.922E-03	298.0	68	
								13997	
<b>Process Weight Rule - Not Applicable<sup>g</sup></b>									
<b>PM Grain Loading Standard<sup>f</sup></b>									
Pollutant	Pollutant Source	Potential Emissions (lb/hr)	Potential Emissions (gr/dscf)	Allowable Emissions (gr/dscf)	Meets Standard?	gr/hr			
PM	LFG Combustion	0.440	< 0.01	0.015	yes	3080			
			0.008223216						
Notes:									
(a) Emission factors for NO <sub>x</sub> from DresserRand Guascor HGM 560 Spec Sheet. Used x1.2 Compliance Margin									
(b) Emission factors for PM-10 & PM-2.5 from AP-42 Table 3.2-2 (Stationary 4-stroke lean-burn, RICE)									
(c) IDAPA 58.01.01.006.106									
(d) IDAPA 58.01.01.221.01 (less than ten percent (10%) of the significant emission rates) = No PTC is Required for this source									
(e) IDAPA 58.01.01.701.02									
(f) IDAPA 58.01.01.676									
** NA - Not Applicable									

**Source G1 SISW MBL Dresser HGM560 at 100% Power per OEM Data TOXIC AIR POLLUTANT EMISSION RATES**

**Idaho Toxic Air Pollutants -- Carcinogenic**

1,1,2,2-Tetrachloroethane c	5.35E-01	3.314E+00	2.86E-04	3.60E-05	1.100E-05	1		
1,1,2,3,4,4-Hexachloro-1,3-butadiene (Hexachlorobutadiene) c	3.49E-03	2.162E-02	2.90E-06	3.65E-07	3.300E-04	0		
1,1,2-Trichloroethane c	1.58E-01	9.786E-01	6.71E-05	8.46E-06	4.200E-04	0		
1,1-Dichloroethane c	2.08E+00	1.288E+01	6.56E-04	8.26E-05	2.500E-04	1		
1,1-Dichloroethene (1,1-Dichloroethylene) c	1.60E-01	9.910E-01	4.94E-05	6.23E-06	1.300E-04	0		
1,2-Dibromoethane (Ethylene dibromide) c	4.80E-03	2.973E-02	2.87E-06	3.62E-07	3.000E-05	0		
1,2-Dichloroethane (Ethylene dichloride) c	1.59E-01	9.848E-01	5.01E-05	6.32E-06	2.500E-04	0		
1,3-Butadiene (Vinyl ethylene) c	1.66E-01	1.028E+00	2.86E-05	3.60E-06	2.400E-05	1		
1,4-Dioxane (1,4-Diethylene dioxide) c	8.29E-03	5.135E-02	2.33E-06	2.93E-07	4.800E-03	0		
Acetaldehyde c	7.74E-02	4.794E-01	1.09E-05	1.37E-06	3.000E-03	0		
Acrylonitrile c,d	BDL	0.000E+00	0.00E+00	0.00E+00	9.800E-05	0		
Benzene c	2.40E+00	1.487E+01	5.97E-04	7.52E-05	8.000E-04	0		
<b>Carbon tetrachloride c</b>								
Chloromethane (Methyl chloride) c	7.98E-03	4.943E-02	3.91E-06	4.93E-07	4.400E-04	0		
Dichloromethane (Methylene chloride) c	2.44E-01	1.511E+00	3.92E-05	4.94E-06	1.900E-03	0		
Formaldehyde c	6.15E+00	3.809E+01	1.66E-03	2.10E-04	1.600E-03	1		
Tetrachloroethylene (Perchloroethylene) c	1.17E-02	7.247E-02	1.12E-06	1.41E-07	5.100E-04	0		
Trichloroethylene (Trichloroethene) c	2.03E+00	1.257E+01	1.07E-03	1.35E-04	1.300E-02	0		
Trichloromethane (Chloroform) c	8.28E-01	5.129E+00	3.47E-04	4.37E-05	5.100E-04	0		
Vinyl chloride (Chloroethene) c	7.08E-02	4.385E-01	2.69E-05	3.39E-06	2.800E-04	0		
	1.42E+00	8.795E+00	2.83E-04	3.56E-05	9.400E-04	0		
			1.66E-01	TOTAL TAPs (tpy)				10/20

**Source G1 SISW MBL Dresser HGM560 at 100% Power per OEM Data HAPs EMISSION RATES**

**Federal Hazardous Air Pollutants**

Pollutant	Concentration in LFG [ppmv]	* LFG flow at 25C (m3/yr)	Potential Emissions [95% control] (lb/hr)	Potential Emissions (g/s)	Emission Limit b (lb/hr)	Modeling Required?c [0= No Modeling]	EPA Listed HAPs
1,1,1-Trichloroethane c	2.43E-01	1.505E+00	1.03E-04	1.30E-05	unk	0	
1,1,2,2-Tetrachloroethane c	5.35E-01	3.314E+00	2.86E-04	3.60E-05	1.100E-05	1	
1,1,2,3,4,4-Hexachloro-1,3-butadiene (Hexachlorobutadiene) c	3.49E-03	2.162E-02	2.90E-06	3.65E-07	3.300E-04	0	
1,1,2-Trichloroethane c	1.58E-01	9.786E-01	6.71E-05	8.46E-06	4.200E-04	0	
1,1-Dichloroethane c	2.08E+00	1.288E+01	6.56E-04	8.26E-05	2.500E-04	1	
1,1-Dichloroethene (1,1-Dichloroethylene) c	1.60E-01	9.910E-01	4.94E-05	6.23E-06	1.300E-04	0	
1,2,4-Trichlorobenzene c	5.51E-03	3.413E-02	3.18E-06	4.01E-07	2.470E+00	0	
1,2-Dibromoethane (Ethylene dibromide) c	4.80E-03	2.973E-02	2.87E-06	3.62E-07	3.000E-05	0	
1,2-Dichloroethane (Ethylene dichloride) c	1.59E-01	9.848E-01	5.01E-05	6.32E-06	2.500E-04	0	
1,2-Dichloropropane c	5.20E-02	3.221E-01	1.87E-05	2.36E-06	2.313E+01	0	
1,3-Butadiene (Vinyl ethylene) c	1.66E-01	1.028E+00	2.86E-05	3.60E-06	2.400E-05	1	
1,4-Dioxane (1,4-Diethylene dioxide) c	8.29E-03	5.135E-02	2.33E-06	2.93E-07	4.800E-03	0	
2,2,4-Trimethylpentane c	1.37E+00	8.486E+00	5.25E-04	6.61E-05	8.200E+00	0	
2-Butanone (Methyl ethyl ketone) (d)							
4-Methyl-2-pentanone (MIBK) c	8.83E-01	5.469E+00	2.82E-04	3.55E-05	unk	0	
Acetaldehyde c	7.74E-02	4.794E-01	1.09E-05	1.37E-06	3.000E-03	0	
Acetonitrile c	5.56E-01	3.444E+00	7.27E-05	9.16E-06	4.470E+00	0	
Acrylonitrile c,d	0.00E+00	0.000E+00	0.00E+00	0.00E+00	9.800E-05	0	
Benzyl chloride c	1.81E-02	1.121E-01	7.30E-06	9.20E-07	unk	0	
Bromomethane (Methyl bromide) c	2.10E-02	1.301E-01	6.35E-06	8.00E-07	1.270E+00	0	
Carbon disulfide c	1.47E-01	9.105E-01	3.57E-05	4.49E-06	2.000E+00	0	
Carbon tetrachloride c	7.98E-03	4.943E-02	3.91E-06	4.93E-07	4.400E-04	0	
Carbonyl sulfide (Carbon oxysulfide) c	1.22E-01	7.557E-01	2.33E-05	2.94E-06	2.700E-02	0	
Chlorodifluoromethane (Freon 22) c	7.96E-01	4.930E+00	2.19E-04	2.76E-05	unk	0	
Chloroethane (Ethyl chloride) c	3.95E+00	2.447E+01	8.12E-04	1.02E-04	1.760E+02	0	
Chloromethane (Methyl chloride) c	2.44E-01	1.511E+00	3.92E-05	4.94E-06	1.900E-03	0	
Dichloromethane (Methylene chloride) c	6.15E+00	3.809E+01	1.66E-03	2.10E-04	1.600E-03	1	
Ethylbenzene c	4.86E+00	3.010E+01	1.64E-03	2.07E-04	2.900E+01	0	
Isopropylbenzene (Cumene) c	4.30E-01	2.663E+00	1.65E-04	2.07E-05	1.630E+01	0	
Mercury (total) c	1.22E-04	7.557E-04	1.56E-06	1.96E-07	3.000E-03	0	
Styrene (Vinylbenzene) c	4.11E-01	2.546E+00	1.36E-04	1.72E-05	6.670E+00	0	
Tetrachloroethylene (Perchloroethylene) c	2.03E+00	1.257E+01	1.07E-03	1.35E-04	1.300E-02	0	
Tribromomethane (Bromoform) c	1.24E-02	7.680E-02	9.98E-06	1.26E-06	3.330E-01	0	
Trichloroethylene (Trichloroethene) c	8.28E-01	5.129E+00	3.47E-04	4.37E-05	1.793E+01	0	
Trichloromethane (Chloroform) c	7.08E-02	4.385E-01	2.69E-05	3.39E-06	2.800E-04	0	
Vinyl acetate c	1.42E+00	8.795E+00	2.83E-04	3.56E-05	9.400E-04	0	
Vinyl chloride (Chloroethene) c	1.42E+00	8.795E+00	2.83E-04	3.56E-05	9.400E-04	0	
1,4-Dichlorobenzene c,e	9.40E-01	5.822E+00	4.40E-04	5.55E-05	3.000E+01	0	
Formaldehyde c	1.17E-02	7.247E-02	1.12E-06	1.41E-07	5.100E-04	0	
Benzene c	2.40E+00	1.487E+01	5.97E-04	7.52E-05	8.000E-04	0	
Hexane c	3.10E+00	1.920E+01	8.51E-04	1.07E-04	1.200E+01	0	
Naphthalene c	1.07E-01	6.628E-01	4.37E-05	5.50E-06	3.330E+00	0	
Toluene (Methyl benzene) c	2.95E+01	1.827E+02	8.66E-03	1.09E-03	2.500E+01	0	
			8.56E-02	TOTAL HAPs (tpy)			

Notes:

(a) Emission Factors from AP-42 Chapter 2.4, "Municipal Solid Waste Landfills", Table 2.4-1.

(b) IDAPA 58.01.01.585 and 586

(c) IDAPA 58.01.01.210.05(b)

(d) 2-Butanone (Methyl ethyl ketone) removed from Fed HAPs list 70 FR 75047

\* FNA - Factor Not Available

\* BDL = Below Detection Limits

Source G2 SISW MBL Dresser HGM560 at 100% Power per OEM Data CRITERIA POLLUTANT EMISSION RATES									
<b>Combustion Source Characteristics</b>			<b>Stack Data</b>			Plot Plan Key "T"			
Engine	DresserRand Guascor		Stack Height (ft)	35	10.668	m			
Model	HGM 560		Stack Diameter (ft)	1.33	0.41	m			
Input Heat Capacity (BTU/hr) (annual bhp-hr)	11,236,480	15,855,600	Exit Gas Temperature (°F)	700	644	K			
Fuel	Landfill Gas scfm	416	Exit Gas Moisture Content						
Heating Value (BTU/scf) (Btu/bhp-hr)	450	6208	Wet Actual Flow Rate (wacf/min)	9218	260.87	m3/min			
Fuel Consumption (scf/hr) [m3/hr]	24,970	707.1	Wet Standard Flow Rate (wscf/min)		4.35	m3/sec			
Engine Power (100% Spec Sheet bhp@ 1640 ft)	1810		Dry Standard Flow Rate (dscf/min)						
<b>Process Characteristics</b>			Stack Velocity (m/s)			33.69			
	2	C	D	25	Fd (dscf stack gas/BTU)				
m3 LFG used/yr	3	6193937	1	Fw (wscf stack gas/BTU)	UTM East	UTM North			
					m	m			
Actual Hours of Operation (hr/yr)	8,322	8760	<b>Site Information</b>			746274	4705909		
Annual Availability	95%		Site Barometric Pressure (mm)	25.08				0.28	of LFG collection
% Methane	0.50		Site Grade	ft MSL	4790				
Destruction Efficiency	0.95								
<b>Criteria Pollutants</b>									
Pollutant	Pollutant Source	Emission Factor <sup>a,b</sup>	Emission Factor Unit	Potential Emissions (lb/hr)	Potential Emissions (TPY)	Potential Emissions (g/s)	Significant Level <sup>f</sup> (TPY)	Below Regulatory Concern? <sup>d</sup>	Significant Contribution? <sup>e</sup>
PM <sub>10</sub>	LFG Combustion	9.91E-03	lb/10E6 Btu	1.11E-01	4.877E-01	1.403E-02	15	yes	no
PM <sub>2.5</sub>	LFG Combustion	9.91E-03	lb/10E6 Btu	1.11E-01	4.877E-01	1.403E-02	15	yes	no
SO <sub>2</sub>	LFG Combustion	from AP42 §2.4	see SO2 tab	6.12E-01	2.881E+00	7.715E-02	40	yes	no
NO <sub>x</sub>	LFG Combustion	1.20E+00	g/hp-hr	4.79E+00	2.097E+01	6.033E-01	40	no	no
CO	LFG Combustion	2.64E+00	g/hp-hr	1.05E+01	4.614E+01	1.327E+00	100	no	no
VOC	LFG Combustion	8.40E-01	g/hp-hr	3.35E+00	1.468E+01	4.223E-01	40	no	no
Lead	LFG Combustion		lb/10 <sup>6</sup> Btu	0.00E+00	0.000E+00	0.000E+00	0.6	yes	no
				1.11E-01	PM25 Ann	1.40E-02			
				4.79E+00	NO2 Annual	6.03E-01			
<b>Non-Criteria Pollutants with Significant Threshold</b>									
Pollutant	Pollutant Source	Emission Factor <sup>a,b</sup>	Emission Factor Unit	Potential Emissions (lb/hr)	Potential Emissions (TPY)	Potential Emissions (g/s)	Significant Level <sup>f</sup> (TPY)	Below Regulatory Concern? <sup>d</sup>	Significant Contribution? <sup>e</sup>
PM	LFG Combustion	9.91E-03	lb/10E6 Btu	1.11E-01	4.877E-01	1.403E-02	25	yes	no
<b>Other Pollutants</b>									
Pollutant	Pollutant Source	Emission Factor <sup>a</sup>	Emission Factor Unit	Potential Emissions (lb/hr)	Potential Emissions (TPY)	Potential Emissions (g/s)	CO <sub>2</sub> e Multiplier	Emissions (TPY CO <sub>2</sub> e)	
TOC	LFG Combustion	1.47	lb/10 <sup>6</sup> Btu	1.65E+01	68.730	2.081E+00	0.0	0	
Methane	LFG Combustion	1.25	lb/10 <sup>6</sup> Btu	1.40E+01	58.444	1.770E+00	25.0	1461	
CO <sub>2</sub>	LFG Combustion	120,000	lb/10 <sup>6</sup> scf	3.00E+03	12467.998	3.775E+02	1.0	12468	
N <sub>2</sub> O	LFG Combustion	2.2	lb/10 <sup>6</sup> scf	5.49E-02	0.229	6.922E-03	298.0	68	
								13997	
<b>Process Weight Rule - Not Applicable<sup>e</sup></b>									
<b>PM Grain Loading Standard<sup>f</sup></b>									
Pollutant	Pollutant Source	Potential Emissions (lb/hr)	Potential Emissions (gr/dscf)	Allowable Emissions (gr/dscf)	Meets Standard?	gr/hr			
PM	LFG Combustion	0.440	< 0.01	0.015	yes	3080			
			0.008223216						
Notes:									
(a) Emission factors for NO <sub>x</sub> from DresserRand Guascor HGM 560 Spec Sheet. Used x1.2 Compliance Margin									
(b) Emission factors for PM-10 & PM-2.5 from AP-42 Table 3.2-2 (Stationary 4-stroke lean-burn, RICE)									
(c) Emission factors for SO <sub>2</sub> from AP-42 Table 2.4 pp7-10, using SISW Stack test H2S									
(d) IDAPA 58.01.01.006.106									
(e) IDAPA 58.01.01.221.01 (less than ten percent (10%) of the significant emission rates) = No PTC is Required for this source									
(f) IDAPA 58.01.01.701.02									
(g) IDAPA 58.01.01.676									
** NA - Not Applicable									

Source G2 SISW MBL Dresser HGM560 at 100% Power per OEM Data TOXIC AIR POLLUTANT EMISSION RATES							
Idaho Toxic Air Pollutants -- Carcinogenic							
1,1,2,2-Tetrachloroethane c	5.35E-01	3.314E+00	2.86E-04	3.60E-05	1.100E-05	1	
1,1,2,3,4,4-Hexachloro-1,3-butadiene (Hexachlorobutadiene) c	3.49E-03	2.162E-02	2.90E-06	3.65E-07	3.300E-04	0	
1,1,2-Trichloroethane c	1.58E-01	9.786E-01	6.71E-05	8.46E-06	4.200E-04	0	
1,1-Dichloroethane c	2.08E+00	1.288E+01	6.56E-04	8.26E-05	2.500E-04	1	
1,1-Dichloroethene (1,1-Dichloroethylene) c	1.60E-01	9.910E-01	4.94E-05	6.23E-06	1.300E-04	0	
1,2-Dibromoethane (Ethylene dibromide) c	4.80E-03	2.973E-02	2.87E-06	3.62E-07	3.000E-05	0	
1,2-Dichloroethane (Ethylene dichloride) c	1.59E-01	9.848E-01	5.01E-05	6.32E-06	2.500E-04	0	
1,3-Butadiene (Vinyl ethylene) c	1.66E-01	1.028E+00	2.86E-05	3.60E-06	2.400E-05	1	
1,4-Dioxane (1,4-Diethylene dioxide) c	8.29E-03	5.135E-02	2.33E-06	2.93E-07	4.800E-03	0	
Acetaldehyde c	7.74E-02	4.794E-01	1.09E-05	1.37E-06	3.000E-03	0	
Acrylonitrile c,d	BDL	0.000E+00	0.00E+00	0.00E+00	9.800E-05	0	
Benzene c	2.40E+00	1.487E+01	5.97E-04	7.52E-05	8.000E-04	0	
Carbon tetrachloride c	7.98E-03	4.943E-02	3.91E-06	4.93E-07	4.400E-04	0	
Chloromethane (Methyl chloride) c	2.44E-01	1.511E+00	3.92E-05	4.94E-06	1.900E-03	0	
Dichloromethane (Methylene chloride) c	6.15E+00	3.809E+01	1.66E-03	2.10E-04	1.600E-03	1	
Formaldehyde c	1.17E-02	7.247E-02	1.12E-06	1.41E-07	5.100E-04	0	
Tetrachloroethylene (Perchloroethylene) c	2.03E+00	1.257E+01	1.07E-03	1.35E-04	1.300E-02	0	
Trichloroethylene (Trichloroethene) c	8.28E-01	5.129E+00	3.47E-04	4.37E-05	5.100E-04	0	
Trichloromethane (Chloroform) c	7.08E-02	4.385E-01	2.69E-05	3.39E-06	2.800E-04	0	
Vinyl chloride (Chloroethene) c	1.42E+00	8.795E+00	2.83E-04	3.56E-05	9.400E-04	0	
			1.66E-01	TOTAL TAPs (tpy)			
Federal Hazardous Air Pollutants							
Source G2 SISW MBL Dresser HGM560 at 100% Power per OEM Data HAPs EMISSION RATES							
Pollutant	Concentration in LFG [ppmv]	* LFG flow at 25C (m3/yr)	Potential Emissions [95% control] (lb/hr)	Potential Emissions (g/s)	Emission Limitb (lb/hr)	Modeling Required?c [0= No Modeling]	EPA Listed HAPs
1,1,1-Trichloroethane c	2.43E-01	1.505E+00	1.03E-04	1.30E-05	unk	0	
1,1,2,2-Tetrachloroethane c	5.35E-01	3.314E+00	2.86E-04	3.60E-05	1.100E-05	1	
1,1,2,3,4,4-Hexachloro-1,3-butadiene (Hexachlorobutadiene) c	3.49E-03	2.162E-02	2.90E-06	3.65E-07	3.300E-04	0	
1,1,2-Trichloroethane c	1.58E-01	9.786E-01	6.71E-05	8.46E-06	4.200E-04	0	
1,1-Dichloroethane c	2.08E+00	1.288E+01	6.56E-04	8.26E-05	2.500E-04	1	
1,1-Dichloroethene (1,1-Dichloroethylene) c	1.60E-01	9.910E-01	4.94E-05	6.23E-06	1.300E-04	0	
1,2,4-Trichlorobenzene c	5.51E-03	3.413E-02	3.18E-06	4.01E-07	2.470E+00	0	
1,2-Dibromoethane (Ethylene dibromide) c	4.80E-03	2.973E-02	2.87E-06	3.62E-07	3.000E-05	0	
1,2-Dichloroethane (Ethylene dichloride) c	1.59E-01	9.848E-01	5.01E-05	6.32E-06	2.500E-04	0	
1,2-Dichloropropane c	5.20E-02	3.221E-01	1.87E-05	2.36E-06	2.313E+01	0	
1,3-Butadiene (Vinyl ethylene) c	1.66E-01	1.028E+00	2.86E-05	3.60E-06	2.400E-05	1	
1,4-Dioxane (1,4-Diethylene dioxide) c	8.29E-03	5.135E-02	2.33E-06	2.93E-07	4.800E-03	0	
2,2,4-Trimethylpentane c	1.37E+00	8.486E+00	5.25E-04	6.61E-05	8.200E+00	0	
2-Butanone (Methyl ethyl ketone) (d)							
4-Methyl-2-pentanone (MIBK) c	8.83E-01	5.469E+00	2.82E-04	3.55E-05	unk	0	
Acetaldehyde c	7.74E-02	4.794E-01	1.09E-05	1.37E-06	3.000E-03	0	
Acetonitrile c	5.56E-01	3.444E+00	7.27E-05	9.16E-06	4.470E+00	0	
Acrylonitrile c,d	0.00E+00	0.000E+00	0.00E+00	0.00E+00	9.800E-05	0	
Benzyl chloride c	1.81E-02	1.121E-01	7.30E-06	9.20E-07	unk	0	
Bromomethane (Methyl bromide) c	2.10E-02	1.301E-01	6.35E-06	8.00E-07	1.270E+00	0	
Carbon disulfide c	1.47E-01	9.105E-01	3.57E-05	4.49E-06	2.000E+00	0	
Carbon tetrachloride c	7.98E-03	4.943E-02	3.91E-06	4.93E-07	4.400E-04	0	
Carbonyl sulfide (Carbon oxysulfide) c	1.22E-01	7.557E-01	2.33E-05	2.94E-06	2.700E-02	0	
Chlorodifluoromethane (Freon 22) c	7.96E-01	4.930E+00	2.19E-04	2.76E-05	unk	0	
Chloroethane (Ethyl chloride) c	3.95E+00	2.447E+01	8.12E-04	1.02E-04	1.760E+02	0	
Chloromethane (Methyl chloride) c	2.44E-01	1.511E+00	3.92E-05	4.94E-06	1.900E-03	0	
Dichloromethane (Methylene chloride) c	6.15E+00	3.809E+01	1.66E-03	2.10E-04	1.600E-03	1	
Ethylbenzene c	4.86E+00	3.010E+01	1.64E-03	2.07E-04	2.900E+01	0	
Isopropylbenzene (Cumene) c	4.30E-01	2.663E+00	1.65E-04	2.07E-05	1.630E+01	0	
Mercury (total) c	1.22E-04	7.557E-04	1.56E-06	1.96E-07	3.000E-03	0	
Styrene (Vinylbenzene) c	4.11E-01	2.546E+00	1.36E-04	1.72E-05	6.670E+00	0	
Tetrachloroethylene (Perchloroethylene) c	2.03E+00	1.257E+01	1.07E-03	1.35E-04	1.300E-02	0	
Tribromomethane (Bromoform) c	1.24E-02	7.680E-02	9.98E-06	1.26E-06	3.330E-01	0	
Trichloroethylene (Trichloroethene) c	8.28E-01	5.129E+00	3.47E-04	4.37E-05	1.793E+01	0	
Trichloromethane (Chloroform) c	7.08E-02	4.385E-01	2.69E-05	3.39E-06	2.800E-04	0	
Vinyl acetate c	1.42E+00	8.795E+00	2.83E-04	3.56E-05	9.400E-04	0	
Vinyl chloride (Chloroethene) c	1.42E+00	8.795E+00	2.83E-04	3.56E-05	9.400E-04	0	
1,4-Dichlorobenzene c,e	9.40E-01	5.822E+00	4.40E-04	5.55E-05	3.000E+01	0	
Formaldehyde c	1.17E-02	7.247E-02	1.12E-06	1.41E-07	5.100E-04	0	
Benzene c	2.40E+00	1.487E+01	5.97E-04	7.52E-05	8.000E-04	0	
Hexane c	3.10E+00	1.920E+01	8.51E-04	1.07E-04	1.200E+01	0	
Naphthalene c	1.07E-01	6.628E-01	4.37E-05	5.50E-06	3.330E+00	0	
Toluene (Methyl benzene) c	2.95E+01	1.827E+02	8.66E-03	1.09E-03	2.500E+01	0	
			8.56E-02	TOTAL HAPs (tpy)			
Notes:							
(a) Emission Factors from AP-42 Chapter 2.4, "Municipal Solid Waste Landfills", Table 2.4-1.							
(b) IDAPA 58.01.01.585 and 586							
(c) IDAPA 58.01.01.210.05(b)							
(d) 2-Butanone (Methyl ethyl ketone) removed from Fed HAPs list 70 FR 75047							
* FNA = Factor Not Available * BDL = Below Detection Limits							

SISW 20170206									
Sulfur-Containing Compounds									
<i>Note: This methodology used as a check on Reduced Sulfur Compound Methodology, below</i>									
	CAS	Published Mol Wt	Abundance in LFG, ( ppmv )	Calculated Mol Wt	Sulfur Mol Wt.in Molecule	Element	Atomic Wt.		
Methanethiol (Methyl mercaptan)	74931	48.11	1.37E+00	47.095	32.06	1	S	32.06	
Hydrogen sulfide	7783064	34.08	3.20E+01	34.076	32.06	1	C	12.011	
Ethyl mercaptan (Ethanethiol)	75081	62.14	1.98E-01	62.13	32.06	1	H	1.008	
Ethyl methyl sulfide	624895	76.16	3.67E-02	76.157	32.06	1	O	15.9994	
Diethyl sulfide	352932	90.19	8.62E-02	90.184	32.06	1			
Dimethyl disulfide	624920	94.2	1.37E-01	94.19	64.12	2	Temp C	25	
Dimethyl sulfide	75183	62.14	5.66E+00	62.13	32.06	1	LFG Collect Efficiency %	75	
Carbonyl sulfide (Carbon oxysulfide) c COS	463581	60.08	1.22E-01	60.0704	32.06	1			
Carbon disulfide c CS2	75150	76.14	1.47E-01	76.131	64.12	2			
Reduced Sulfur Compounds									
	CAS	Sulfur in Molecule Mol Wt	Abundance in LFG, ( ppmv )	[ AP-42 Chap 2.4 p7 Equation 3 ] Qrscp	[ AP-42 Chap 2.4 p7 Equation 4 ] UMrscp				
Methanethiol (Methyl mercaptan)	74931	32.06	1.37E+00	29.0	3.80E+01	kg/yr	Uncontrolled Mass Emissions of RSCs as Sulfur		585
Hydrogen sulfide	7783064	32.06	1.37E+01	H2S 3,173.4	4.16E+03	kg/yr	Uncontrolled Mass Emissions of RSCs as Sulfur		585
Ethyl mercaptan (Ethanethiol)	75081	32.06	1.98E-01	4.2	5.49E+00	kg/yr	Uncontrolled Mass Emissions of RSCs as Sulfur		585
Ethyl methyl sulfide	624895	32.06	3.67E-02	0.8	1.02E+00	kg/yr	Uncontrolled Mass Emissions of RSCs as Sulfur		
Diethyl sulfide	352932	32.06	8.62E-02	1.8	2.39E+00	kg/yr	Uncontrolled Mass Emissions of RSCs as Sulfur		
Dimethyl disulfide	624920	64.12	1.37E-01	2.9	7.60E+00	kg/yr	Uncontrolled Mass Emissions of RSCs as Sulfur		
Dimethyl sulfide	75183	32.06	5.66E+00	119.7	1.57E+02	kg/yr	Uncontrolled Mass Emissions of RSCs as Sulfur		
Carbonyl sulfide (Carbon oxysulfide) c COS	463581	32.06	1.22E-01	2.6	3.38E+00	kg/yr	Uncontrolled Mass Emissions of RSCs as Sulfur		585
Carbon disulfide c CS2	75150	64.12	1.47E-01	3.1	8.16E+00	kg/yr	Uncontrolled Mass Emissions of RSCs as Sulfur		585
Q rsc terms in FRONT of Equation =	21.1559			UM rsc =	4.38E+03	kg/yr	Uncontrolled Mass Emissions of RSCs as Sulfur		
UM rsc p terms in FRONT of Equation =	4.09E-02								
Note: H2S was previously 82 ppmv, based on data provided for sfc monitoring. Operator noted since that instances exist of 120 ppmv. The H2S was been modeled at 150 ppmv as compliance factor applied.									
					[ AP-42 Chap 2.4 p10 Equation 7 ]				Note: Per DEQ correcton, CM SO2 does not include collection efficiency term
				CM SO2 =	8767.994	kg/yr	LFG Collection System-Controlled Mass Emissions of Sulfur Dioxide		
			2.45E+01 lbs/10E6 scfm LFG		2.207 lbs/hr				
					0.28 g/sec				
					9.66 tpy				
					total				
							32624 scf/hr		
							0.032624 10E6 scf/hr		
							0.00054373 10E6 scfm		
	0.612	lbs/hr	0.612	lbs/hr	0.982	lbs/hr	2.207	4.51E+04 lbs SO2 /yr	1
	0.077	g/sec	0.077	g/sec	0.124	g/sec	0.278		1
	2.681	tpy	2.681	tpy	4.302	tpy	9.665		1
	E2		E1		F1				
	416		416		668		Facility Wide CH4 cfm	1500	
	27.7%		27.7%		44.5%			100.0%	

Source H1: Propane-Fired Space Heater CRITERIA POLLUTANT EMISSION RATES									
<b>Combustion Source Characteristics</b>					<b>Stack Data</b>				
Burner Manufacturer	Modine				Stack Height (ft)	20.3	6.18744	m	
Model	HD150				Stack Diameter (ft)	0.5	0.1524	m	
Input Heat Capacity (BTU/hr)	150,000				Avg Exit Gas Temperature (°F)	215		374.8	
Fuel	Propane				Exit Gas Moisture Content				
Heating Value (BTU/gal)	91,500				Wet Actual Flow Rate (wacf/min)				
Fuel Consumption (gal/hr)	1.64				Wet Standard Flow Rate (wscf/min)				
AP42, T1.5-1, footnote 1 convert:	0.08971				Dry Standard Flow Rate (dscf/min)				
<b>Process Characteristics</b>					Stack Velocity (m/s)				
Total PM Emission Rate (lb/hr)					F <sub>d</sub> (dscf stack gas/BTU)				
PM2.5 Emission Rate (lb/hr)					F <sub>w</sub> (wscf stack gas/BTU)				
8,760					UTM North				
Actual Hours of Op 1300					m				
10 hrs/day					UTM East				
Hrs/Day					4705841 746480.2				
26 weeks					5 days/week				
Nov1toApr30					Site Information				
					MBL Barometric Pressure (mm Hg)				
					663.93				
<b>Criteria Pollutants</b>									
Pollutant	Pollutant Source	Emission Factor <sup>a,b</sup>	Emission Factor Unit	Potential Emissions (lb/hr)	Potential Emissions (TPY)	Potential Emissions (g/s)	Significant Level <sup>c</sup> (TPY)	Below Regulatory Concern? <sup>d</sup>	Significant Contribution? <sup>e</sup>
PM <sub>10</sub>	NG Combustion	0.68	lb/1000 gal	1.115E-03	4.883E-03	1.405E-04	15	yes	no
PM <sub>2.5</sub>	NG Combustion	0.68	lb/1000 gal	1.115E-03	4.883E-03	1.405E-04	10	yes	no
SO <sub>2</sub>	NG Combustion	0.1	lb/1000 gal	1.639E-04	7.180E-04	2.066E-05	40	yes	no
NO <sub>x</sub>	NG Combustion	13	lb/1000 gal	2.131E-02	9.334E-02	2.685E-03	40	yes	no
CO	NG Combustion	7.5	lb/1000 gal	1.230E-02	5.385E-02	1.549E-03	100	yes	no
VOC	NG Combustion	0.5	lb/1000 gal	8.197E-04	3.590E-03	1.033E-04	40	yes	no
Lead	NG Combustion	0.0005	lb/1000 gal	7.353E-08	3.221E-07	9.265E-09	0.6	yes	no
				1.11E-03	PM25 24h	1.405E-04			
				1.11E-03	PM25 Ann	1.40E-04			
				2.13E-02	NOx Ann	2.69E-03			
<b>Non-Criteria Pollutants with Significant Threshold</b>									
Pollutant	Pollutant Source	Emission Factor <sup>a,b</sup>	Emission Factor Unit	Potential Emissions (lb/hr)	Potential Emissions (TPY)	Potential Emissions (g/s)	Significant Level <sup>c</sup> (TPY)	Below Regulatory Concern? <sup>d</sup>	Significant Contribution? <sup>e</sup>
PM	NG Combustion	0.68	lb/1000 gal	1.115E-03	4.883E-03	1.405E-04	25	yes	no
Beryllium	NG Combustion	1.20E-05	lb/1000 gal	1.765E-09	7.729E-09	2.224E-10	0.0004	yes	no
Mercury	NG Combustion	2.60E-04	lb/1000 gal	3.824E-08	1.675E-07	4.818E-09	0.1	yes	no
<b>Other Pollutants</b>									
Pollutant	Pollutant Source	Emission Factor <sup>a</sup>	Emission Factor Unit	Potential Emissions (lb/hr)	Potential Emissions (TPY)	Potential Emissions (g/s)	CO2e Multiplier	Emissions (TPY CO2e)	
TOC	NG Combustion	1	lb/1000 gal	1.639E-03	7.180E-03	2.066E-04	0.0	0.000	
Methane	NG Combustion	0.2	lb/1000 gal	3.279E-04	1.436E-03	4.131E-05	25.0	0.036	
CO <sub>2</sub>	NG Combustion	12,500	lb/1000 gal	2.049E+01	8.975E+01	2.582E+00	1.0	90	
N <sub>2</sub> O	NG Combustion	0.9	lb/1000 gal	1.475E-03	6.462E-03	1.859E-04	298.0	2	
								92	
<b>Process Weight Rule - Not Applicable<sup>g</sup></b>									
<b>PM Grain Loading Standard<sup>f</sup></b>									
Pollutant	Pollutant Source	Potential Emissions (lb/hr)	Potential Emissions (gr/dscf)	Allowable Emissions (gr/dscf)	Meets Standard?				
PM	NG Combustion	n/a	< 0.01	0.015	yes				
Notes:									
(a) Emission Factors from AP-42 Chapter 1.5, Table 1.5-1: "LPG Propane Combustion"; plus A National Methodology and Emission Inventory for Residential Fuel Combustion Bernd H. Hanek PES, Inc. E-mail: bhaneke@mactec.com									
(b) All particulate emissions assumed to be PM2.5									
(c) IDAPA 58.01.01.006.106									
(d) IDAPA 58.01.01.221.01 (less than ten percent (10%) of the significant emission rates) = No PTC is Required for this source									
(e) IDAPA 58.01.01.701.02									
(f) IDAPA 58.01.01.676									
** NA - Not Applicable									

**Source H1: Propane-Fired Space Heater HAZARDOUS AIR POLLUTANT EMISSION RATES**

**Federal Hazardous Air Pollutants**

Pollutant	Emission Factor <sup>a</sup>	Emission Factor Unit	Potential Emissions (lb/hr)	Potential Emissions (g/s)	Emission Limit <sup>b</sup> (lb/hr)	Modeling Required? <sup>c</sup>	
2-Methylnaphthalene	2.40E-05	lb/1000 gal	3.53E-09	4.45E-10	9.10E-05	no	4.89E-06
3-Methylchloranthrene	1.80E-06	lb/1000 gal	2.65E-10	3.34E-11	9.10E-05	no	3.67E-07
7,12-Dimethylbenz(a)anthracene	1.60E-05	lb/1000 gal	2.35E-09	2.96E-10	9.10E-05	no	3.26E-06
Acenaphthene	1.80E-06	lb/1000 gal	2.65E-10	3.34E-11	9.10E-05	no	3.67E-07
Acenaphthylene	1.80E-06	lb/1000 gal	2.65E-10	3.34E-11	9.10E-05	no	3.67E-07
Anthracene	2.40E-06	lb/1000 gal	3.53E-10	4.45E-11	9.10E-05	no	4.89E-07
Benzo(g,h,i)perylene	1.20E-06	lb/1000 gal	1.76E-10	2.22E-11	9.10E-05	no	2.44E-07
Fluoranthene	3.00E-06	lb/1000 gal	4.41E-10	5.56E-11	9.10E-05	no	6.11E-07
Phenanathrene	1.70E-05	lb/1000 gal	2.50E-09	3.15E-10	9.10E-05	no	3.46E-06
Pyrene	5.00E-06	lb/1000 gal	7.35E-10	9.26E-11	9.10E-05	no	1.02E-06
Fluorene	2.80E-06	lb/1000 gal	4.12E-10	5.19E-11	1.33E-01	no	3.90E-10
<b>Benzo(a)pyrene</b>	1.20E-06	lb/1000 gal	1.76E-10	2.22E-11	2.00E-06		
Benz(a)anthracene	1.80E-06	lb/1000 gal	2.65E-10	3.34E-11	POM		
Benzo(b)fluoranthene	1.80E-06	lb/1000 gal	2.65E-10	3.34E-11	POM		
Benzo(k)fluoranthene	1.80E-06	lb/1000 gal	2.65E-10	3.34E-11	POM		
Chrysene	1.80E-06	lb/1000 gal	2.65E-10	3.34E-11	POM		
Dibenzo(a,h)anthracene	1.20E-06	lb/1000 gal	1.76E-10	2.22E-11	POM		
Indeno(1,2,3-cd)pyrene	1.80E-06	lb/1000 gal	2.65E-10	3.34E-11	POM		
		SUM of POM	1.68E-09	2.11E-10	<b>2.00E-06</b>	no	1.06E-04
Dichlorobenzene	1.20E-03	lb/1000 gal	1.76E-07	2.22E-08	2.00E+01	no	1.11E-09
Formaldehyde	7.50E-02	lb/1000 gal	1.10E-05	1.39E-06	5.10E-04	no	2.72E-03
Benzene	2.10E-03	lb/1000 gal	3.09E-07	3.89E-08	8.00E-04	no	4.86E-05
Hexane	1.80E+00	lb/1000 gal	2.65E-04	3.34E-05	1.20E+01	no	2.78E-06
Naphthalene	6.10E-04	lb/1000 gal	8.97E-08	1.13E-08	3.33E+00	no	3.39E-09
Toluene	3.40E-03	lb/1000 gal	5.00E-07	6.30E-08	2.50E+01	no	2.52E-09

0.001 TOTAL HAPs (tpy)

Notes:

(a1) Emission Factors from AP-42 Chapter 1.4, "Natural Gas Combustion".

(a1) EF xform to EI per C3H6 from AP-42 Chapter 1.5, Table 1, Note a: "LPG Propane Combustion".

(b) IDAPA 58.01.01.585 and 586

(c) IDAPA 58.01.01.210.05(b)

\* FNA - Factor Not Available

Source H2: Waste Oil-Fired Space Heater CRITERIA POLLUTANT EMISSION RATES											
Combustion Source Characteristics					Stack Data						
Burner Manufacturer	"Clean Burn"				Stack Height (ft)	25.00	7.62	m			
Model	CB3500	Atomizing			Stack Diameter (ft)	0.67	0.2032	m			
Input Heat Capacity (BTU/hr)	350,000				Avg Exit Gas Temperature (°F)	411		210.5724			
Fuel	Used Oil Mix				A= Used Oil Ash w%	0.525					
Heating Value (BTU/gal)	125,000				S= Used Oil Sulfur w%	0.335					
Fuel Consumption (gal/hr) (gal/yr)	2.5	3300			L= Used Oil Lead w%	0.00498					
					Wet Standard Flow Rate (wscf/min)	213	3.55				
Process Characteristics					Stack Velocity (m/s)	3.20		3.2			
Total PM Emission Rate (lb/hr)					F <sub>d</sub> (dscf stack gas/BTU)						
PM2.5 Emission Rate (lb/hr)					F <sub>w</sub> (wscf stack gas/BTU)						
8,760					UTM North UTM East						
					m m						
Actual Hours of Op	1300	10 hrs/day			Site Information						
Hrs/Day	Nov1toApr30			MBL Barometric Pressure (mm Hg)					646		
26 weeks					5 days/week					Stack top 4418 ft MSL	
Criteria Pollutants											
Pollutant	Pollutant Source	Emission Factor <sup>a,b</sup>	Emission Factor Unit	Potential Emissions (lb/hr)	Potential Emissions (TPY)	Potential Emissions (g/s)	Significant Level <sup>c</sup> (TPY)	Below Regulatory Concern? <sup>d</sup>	Significant Contribution <sup>e</sup>		
PM <sub>10</sub>	Used Oil Combust	0.029925	lb/gal	0.075	0.328	3.928E-03	15	yes	no		
PM <sub>2.5</sub>	Used Oil Combust	0.029925	lb/gal	0.075	0.328	3.928E-03	10	yes	no		
SO <sub>2</sub>	Used Oil Combust	0.035845	lb/gal	0.090	0.393	1.129E-02	40	yes	no		
NO <sub>x</sub>	Used Oil Combust	0.016	lb/gal	0.040	0.175	5.040E-03	40	yes	no		
CO	Used Oil Combust	0.0021	lb/gal	0.005	0.023	6.615E-04	100	yes	no		
VOC	Used Oil Combust	0.001	lb/gal	0.003	0.011	3.150E-04	40	yes	no		
Lead	Used Oil Combust	0.000249	lb/gal	6.23E-04	2.73E-03	7.84E-05	0.6	yes	no		
				7.48E-02	PM25 Ann	3.93E-03					
				4.00E-02	NOx Ann	5.04E-03					
Non-Criteria Pollutants with Significant Threshold											
Pollutant	Pollutant Source	Emission Factor <sup>a,b</sup>	Emission Factor Unit	Potential Emissions (lb/hr)	Potential Emissions (TPY)	Potential Emissions (g/s)	Significant Level <sup>c</sup> (TPY)	Below Regulatory Concern? <sup>d</sup>	Significant Contribution <sup>e</sup>		
PM	Used Oil Combust	0.03465	lb/gal	0.087	0.379	1.091E-02	15	yes	no		
Beryllium	Used Oil Combust	1.80E-03	lb/gal	0.005	0.020	0.001	0.0004	no	yes		
Mercury	Used Oil Combust	ND	lb/10 <sup>6</sup> scf	0.000	0.000	0.000	0.1	yes	no		
Other Pollutants											
Pollutant	Pollutant Source	Emission Factor <sup>a</sup>	Emission Factor Unit	Potential Emissions (lb/hr)	Potential Emissions (TPY)	Potential Emissions (g/s)	CO2e Multiplier	Potential Emissions (TPY CO2e)			
TOC	Used Oil Combust	0.001	lb/gal	0.003	0.011	3.150E-04	0.0	0			
Methane	Used Oil Combust	ND	lb/gal	0.000	0.000	0.000	25.0	0			
CO <sub>2</sub>	Used Oil Combust	22	lb/gal	55.000	240.900	6.930E+00	1.0	241			
N <sub>2</sub> O	Used Oil Combust	ND	lb/gal	0.000	0.000	0.000	298.0	0			
							241				
Process Weight Rule - Not Applicable <sup>g</sup>											
PM Grain Loading Standard <sup>f</sup>											
Pollutant	Pollutant Source	Potential Emissions (lb/hr)	Potential Emissions (gr/dscf)	Allowable Emissions (gr/dscf)	Meets Standard?						
PM	Used Oil Combust	n/a	< 0.01	0.015	yes						
Notes:											
(a1) Emission factors from AP-42 Chapter 1.11, Tables 1.11-1 (PM, PM10, Lead); 1.11-2 (NOx SOx and CO); 1.11-3 (TOC and CO2) "Waste Oil Combustors : Atomizing Burner".											
(a2) TABLE B, Vermont Used Oil Analysis and Waste Oil Furnace Emissions Study, Rev March 1996, Vermont Haz Mat Mgmt Div, Waterbury											
(b) All particulate emissions assumed to be PM2.5											
(c) IDAPA 58.01.01.006.106											
(d) IDAPA 58.01.01.221.01 (less than ten percent (10%) of the significant emission rates) = No PTC is Required for this source											
(e) IDAPA 58.01.01.701.02											
(f) IDAPA 58.01.01.676											
** NA - Not Applicable											

<b>Source H2: Waste Oil-Fired Space Heater TOXIC AIR POLLUTANT EMISSION RATES</b>										
<b>Combustion Source Characteristics</b>					<b>Stack Data</b>					
Burner Manufacturer	"Clean Burn"			Stack Height (ft)	25.00	7.62	m			
Model	CB3500 Atomizing			Stack Diameter (ft)	0.67	0.2032	m			
Input Heat Capacity (BTU/hr)	350,000			Avg Exit Gas Temperature (°F)	411		210.5724			
Fuel	Used Oil Mix			S= Used Oil Sulfur w%	0.525					
Heating Value (BTU/gal)	125,000			A= Used Oil Ash w%	0.335					
Fuel Consumption (gal/hr)	(gal/hr)	(gal/yr)	2.5	3300	L= Used Oil Lead w%	0.00498				
					Wet Standard Flow Rate (wscf/min)	213	3.55			
<b>Process Characteristics</b>					Stack Velocity (m/s)	3.20				
Total PM Emission Rate (lb/hr)				F <sub>d</sub> (dscf stack gas/BTU)						
PM2.5 Emission Rate (lb/hr)				F <sub>w</sub> (wscf stack gas/BTU)			UTM North	UTM East		
							m	m		
Actual Hours of Operation (hr/yr)	1300	8,760	10 hrs/day		<b>Site Information</b>					
Hrs/Day	Nov1toApr30			MBL Barometric Pressure (mm Hg)		646		4705839	746504	
					Stack top 4418 ft MSL					
<b>Idaho Toxic Air Pollutants -- Non-Carcinogenic</b>							H2 Annual Operating %	14.8%		
Pollutant	Emission Factor <sup>a</sup>	Emission Factor Unit	Potential Emissions (lb/hr)	Potential Emissions (g/s)	Emission Limit <sup>b</sup> (lb/hr)	Modeling Required? <sup>c</sup>				
Antimony	4.500E-06	lb/gallon	1.125E-05	1.418E-06	3.300E-02	no				
Barium										
Chromium	1.80E-04	lb/gallon	4.500E-04	5.670E-05	3.30E-02	no				
Cobalt	5.20E-06	lb/gallon	1.300E-05	1.638E-06	3.30E-03	no				
Copper										
Dibutylphthalate	3.400E-08	lb/gallon	8.500E-08	1.071E-08	3.33E-01	no				
Dichlorobenzene	ND	lb/gallon	NA	NA	2.00E+01	no				
Ethylbenzene										
Fluorene										
Hexane										
Manganese	5.00E-05	lb/gallon	1.250E-04	1.575E-05	6.70E-02	no				
Mercury										
Molybdenum										
Napthalene	9.20E-08	lb/gallon	2.300E-07	2.898E-08	3.33E+00	no				
Pentane										
Phenol	2.800E-08	lb/gallon	7.000E-08	8.820E-09	1.27E+00	no				
Phosphorus	ND				7.00E-03	no				
Selenium	BDL	lb/gallon	NA	NA	1.30E-02	no				
Toluene										
Vanadium										
o-Xylene										
Zinc										
<b>Idaho Toxic Air Pollutants -- Carcinogenic</b>										
Arsenic	1.60E-06	lb/gallon	4.000E-06	5.040E-07	1.50E-06	yes	20170102			
Benzene										
Beryllium	1.80E-06	lb/gallon	4.500E-06	5.670E-07	2.80E-05	no				
Benzo(a)pyrene	ND	lb/gallon	NA	NA	2.00E-06	no				
Bis (2-ethylhexyl)phthalate	ND	lb/gallon	NA	NA	2.80E-02	no				
Cadmium	1.20E-05	lb/gallon	3.000E-05	3.780E-06	3.70E-06	yes				
Formaldehyde										
Nickel	3.91E-06	lb/gallon	9.775E-06	1.232E-06	2.70E-05	no	20170102		3.916	
Trichloroethylene	ND	lb/gallon	NA	NA	5.10E-04	no				
20161231			0.00065	TOTAL TAPs (lb/hr)						
			0.00284	TOTAL TAPs (tpy)						

Source H3: Waste Oil-Fired Space Heater CRITERIA POLLUTANT EMISSION RATES									
Combustion Source Characteristics					Stack Data				
Burner Manufacturer	"Clean Burn"				Stack Height (ft)	25.00	7.62	m	
Model	CB3500	Atomizing			Stack Diameter (ft)	0.67	0.2032	m	
Input Heat Capacity (BTU/hr)	350,000				Avg Exit Gas Temperature (°F)	411		210.5724	
Fuel	Used Oil Mix				A= Used Oil Ash w%	0.525			
Heating Value (BTU/gal)	125,000				S= Used Oil Sulfur w%	0.335			
Fuel Consumption (gal/hr) (gal/yr)	2.5	3300			L= Used Oil Lead w%	0.00498			
<b>Process Characteristics</b>					Wet Standard Flow Rate (wscf/min)	213		3.55	
Total PM Emission Rate (lb/hr)					Stack Velocity (m/s)	3.20			
PM2.5 Emission Rate (lb/hr)					F <sub>d</sub> (dscf stack gas/BTU)			UTM North	UTM East
	8,760				F <sub>w</sub> (wscf stack gas/BTU)			m	m
Actual Hours of Op	1300	10 hrs/day			<b>Site Information</b>		4705838.4	746503	
	Nov1toApr30				MBL Barometric Pressure (mm Hg)			646	
	26 weeks				5 days/week	Stack top 4418 ft MSL			
Criteria Pollutants									
Pollutant	Pollutant Source	Emission Factor <sup>a,b</sup>	Emission Factor Unit	Potential Emissions (lb/hr)	Potential Emissions (TPY)	Potential Emissions (g/s)	Significant Level <sup>c</sup> (TPY)	Below Regulatory Concern? <sup>d</sup>	Significant Contribution <sup>e</sup> n? <sup>c</sup>
PM <sub>10</sub>	Used Oil Combust	0.029925	lb/gal	0.075	0.328	3.928E-03	15	yes	no
PM <sub>2.5</sub>	Used Oil Combust	0.029925	lb/gal	0.075	0.328	3.928E-03	10	yes	no
SO <sub>2</sub>	Used Oil Combust	0.035845	lb/gal	0.090	0.393	1.129E-02	40	yes	no
NO <sub>x</sub>	Used Oil Combust	0.016	lb/gal	0.040	0.175	5.040E-03	40	yes	no
CO	Used Oil Combust	0.0021	lb/gal	0.005	0.023	6.615E-04	100	yes	no
VOC	Used Oil Combust	0.001	lb/gal	0.003	0.011	3.150E-04	40	yes	no
Lead	Used Oil Combust	0.000249	lb/gal	6.23E-04	2.73E-03	7.84E-05	0.6	yes	no
				7.48E-02	<b>PM25 Ann</b>	3.93E-03			
				4.00E-02	<b>NOx Ann</b>	5.04E-03			
Non-Criteria Pollutants with Significant Threshold									
Pollutant	Pollutant Source	Emission Factor <sup>a,b</sup>	Emission Factor Unit	Potential Emissions (lb/hr)	Potential Emissions (TPY)	Potential Emissions (g/s)	Significant Level <sup>c</sup> (TPY)	Below Regulatory Concern? <sup>d</sup>	Significant Contribution <sup>e</sup> n? <sup>c</sup>
PM	Used Oil Combust	0.03465	lb/gal	0.087	0.379	1.091E-02	15	yes	no
Beryllium	Used Oil Combust	1.80E-03	lb/gal	0.005	0.020	0.001	0.0004	no	yes
Mercury	Used Oil Combust	ND	lb/10 <sup>6</sup> scf	0.000	0.000	0.000	0.1	yes	no
Other Pollutants									
Pollutant	Pollutant Source	Emission Factor <sup>a</sup>	Emission Factor Unit	Potential Emissions (lb/hr)	Potential Emissions (TPY)	Potential Emissions (g/s)	CO2e Multiplier	Potential Emissions (TPY CO2e)	
TOC	Used Oil Combust	0.001	lb/gal	0.003	0.011	3.150E-04	0.0	0	
Methane	Used Oil Combust	ND	lb/gal	0.000	0.000	0.000	25.0	0	
CO <sub>2</sub>	Used Oil Combust	22	lb/gal	55.000	240.900	6.930E+00	1.0	241	
N <sub>2</sub> O	Used Oil Combust	ND	lb/gal	0.000	0.000	0.000	298.0	0	
								241	
Process Weight Rule - Not Applicable <sup>g</sup>									
PM Grain Loading Standard <sup>f</sup>									
Pollutant	Pollutant Source	Potential Emissions (lb/hr)	Potential Emissions (gr/dscf)	Allowable Emissions (gr/dscf)	Meets Standard?				
PM	Used Oil Combust	n/a	< 0.01	0.015	yes				
Notes:									
(a1) Emission factors from AP-42 Chapter 1.4, Tables 1.11-1 (PM, PM10, Lead); 1.11-2 (NOx SOx and CO); 1.11-3 (TOC and CO2) "Waste Oil Combustors : Atomizing Burner".									
(a2) TABLE B, Vermont Used Oil Analysis and Waste Oil Furnace Emissions Study, Rev March 1996, Vermont Haz Mat Mgmt Div, Waterbury									
(b) All particulate emissions assumed to be PM2.5									
(c) IDAPA 58.01.01.006.106									
(d) IDAPA 58.01.01.221.01 (less than ten percent (10%) of the significant emission rates) = No PTC is Required for this source									
(e) IDAPA 58.01.01.701.02									
(f) IDAPA 58.01.01.676									
** NA - Not Applicable									

Source H3: Waste Oil-Fired Space Heater TOXIC AIR POLLUTANT EMISSION RATES									
<b>Combustion Source Characteristics</b>					<b>Stack Data</b>				
Burner Manufacturer	"Clean Burn"			Stack Height (ft)	25.00	7.62	m		
Model	CB3500 Atomizing			Stack Diameter (ft)	0.67	0.2032	m		
Input Heat Capacity (BTU/hr)	350,000			Avg Exit Gas Temperature (°F)	411		210.5724		
Fuel	Used Oil Mix			S= Used Oil Sulfur w%	0.525				
Heating Value (BTU/gal)	125,000			A= Used Oil Ash w%	0.335				
Fuel Consumption (gal/hr)	(gal/hr)	(gal/y)	2.5	3300	L= Used Oil Lead w%	0.00498			
<b>Process Characteristics</b>					Wet Standard Flow Rate (wscf/min)	213	3.55		
Total PM Emission Rate (lb/hr)				Stack Velocity (m/s)	3.20				
PM2.5 Emission Rate (lb/hr)				F <sub>d</sub> (dscf stack gas/BTU)					
					F <sub>w</sub> (wscf stack gas/BTU)	UTM North		UTM East	
							m	m	
Actual Hours of Operation (hr/yr)	1300	8,760	10 hrs/day		<b>Site Information</b>			4705838	746503
Hrs/Day	Nov1toApr30			MBL Barometric Pressure (mm Hg)			646		
26 weeks					5 days/week		Stack top 4418 ft MSL		
<b>Idaho Toxic Air Pollutants -- Non-Carcinogenic</b>							H3 Annual Operating %	14.8%	
Pollutant	Emission Factor <sup>a</sup>	Emission Factor Unit	Potential Emissions (lb/hr)	Potential Emissions (g/s)	Emission Limit <sup>b</sup> (lb/hr)	Modeling Required? <sup>c</sup>			
Antimony	4.500E-06	lb/gallon	1.125E-05	1.418E-06	3.300E-02	no			
Barium									
Chromium	1.80E-04	lb/gallon	4.500E-04	5.670E-05	3.30E-02	no			
Cobalt	5.20E-06	lb/gallon	1.300E-05	1.638E-06	3.30E-03	no			
Copper									
Dibutylphthalate	3.400E-08	lb/gallon	8.500E-08	1.071E-08	3.33E-01	no			
Dichlorobenzene	ND	lb/gallon	NA	NA	2.00E+01	no			
Ethylbenzene									
Fluorene									
Hexane									
Manganese	5.00E-05	lb/gallon	1.250E-04	1.575E-05	6.70E-02	no			
Mercury									
Molybdenum									
Napthalene	9.20E-08	lb/gallon	2.300E-07	2.898E-08	3.33E+00	no			
Pentane									
Phenol	2.800E-08	lb/gallon	7.000E-08	8.820E-09	1.27E+00	no			
Phosphorus	ND				7.00E-03	no			
Selenium	BDL	lb/gallon	NA	NA	1.30E-02	no			
Toluene									
Vanadium									
o-Xylene									
Zinc									
<b>Idaho Toxic Air Pollutants -- Carcinogenic</b>									
Arsenic (a2)	1.60E-06	lb/gallon	4.000E-06	5.040E-07	1.50E-06	yes	20170102		
Benzene									
Beryllium	1.80E-06	lb/gallon	4.500E-06	5.670E-07	2.80E-05	no			
Benzo(a)pyrene	ND	lb/gallon	NA	NA	2.00E-06	no			
Bis (2-ethylhexyl)phthalate	ND	lb/gallon	NA	NA	2.80E-02	no			
Cadmium	1.20E-05	lb/gallon	3.000E-05	3.780E-06	3.70E-06	yes			
Formaldehyde									
Nickel	3.91E-06	lb/gallon	9.775E-06	1.232E-06	2.70E-05	no	20170102		
Trichloroethylene	ND	lb/gallon	NA	NA	5.10E-04	no			
20161231			0.00065	TOTAL TAPs (lb/hr)					
			0.00284	TOTAL TAPs (tpy)					

Source H4: Propane-Fired Space Heater CRITERIA POLLUTANT EMISSION RATES									
<b>Combustion Source Characteristics</b>					<b>Stack Data</b>				
Burner Manufacturer	Modine				Stack Height (ft)	20.3	6.18744	m	
Model	HD150				Stack Diameter (ft)	0.5	0.1524	m	
Input Heat Capacity (BTU/hr)	150,000				Avg Exit Gas Temperature (°F) (K)	215	374.8		
Fuel	Propane				Exit Gas Moisture Content				
Heating Value (BTU/gal)	91,500				Wet Actual Flow Rate (wacf/min)				
Fuel Consumption (gal/hr)	1.64				Wet Standard Flow Rate (wscf/min)				
AP42, T1.5-1, footnote 1 convert:	0.08971				Dry Standard Flow Rate (dscf/min)				
<b>Process Characteristics</b>					Stack Velocity (m/s)				
Total PM Emission Rate (lb/hr)					F <sub>d</sub> (dscf stack gas/BTU)				
PM2.5 Emission Rate (lb/hr)					F <sub>w</sub> (wscf stack gas/BTU)				
8,760					UTM North				
Actual Hours of Op 1300					m				
10 hrs/day					UTM East				
Nov1toApr30					4705819				
26 weeks					5 days/week				
Hrs/Day					663.93				
26 weeks					5 days/week				
<b>Criteria Pollutants</b>									
Pollutant	Pollutant Source	Emission Factor <sup>a,b</sup>	Emission Factor Unit	Potential Emissions (lb/hr)	Potential Emissions (TPY)	Potential Emissions (g/s)	Significant Level <sup>c</sup> (TPY)	Below Regulatory Concern? <sup>d</sup>	Significant Contribution? <sup>e</sup>
PM <sub>10</sub>	NG Combustion	0.68	lb/1000 gal	1.115E-03	4.883E-03	1.405E-04	15	yes	no
PM <sub>2.5</sub>	NG Combustion	0.68	lb/1000 gal	1.115E-03	4.883E-03	1.405E-04	10	yes	no
SO <sub>2</sub>	NG Combustion	0.1	lb/1000 gal	1.639E-04	7.180E-04	2.066E-05	40	yes	no
NO <sub>x</sub>	NG Combustion	13	lb/1000 gal	2.131E-02	9.334E-02	2.685E-03	40	yes	no
CO	NG Combustion	7.5	lb/1000 gal	1.230E-02	5.385E-02	1.549E-03	100	yes	no
VOC	NG Combustion	0.5	lb/1000 gal	8.197E-04	3.590E-03	1.033E-04	40	yes	no
Lead	NG Combustion	0.0005	lb/1000 gal	7.353E-08	3.221E-07	9.265E-09	0.6	yes	no
				1.11E-03	PM25 24h	1.405E-04			
				1.11E-03	PM25 Ann	1.40E-04			
				2.13E-02	NOx Ann	2.69E-03			
<b>Non-Criteria Pollutants with Significant Threshold</b>									
Pollutant	Pollutant Source	Emission Factor <sup>a,b</sup>	Emission Factor Unit	Potential Emissions (lb/hr)	Potential Emissions (TPY)	Potential Emissions (g/s)	Significant Level <sup>c</sup> (TPY)	Below Regulatory Concern? <sup>d</sup>	Significant Contribution? <sup>e</sup>
PM	NG Combustion	0.68	lb/1000 gal	1.115E-03	4.883E-03	1.405E-04	25	yes	no
Beryllium	NG Combustion	1.20E-05	lb/1000 gal	1.765E-09	7.729E-09	2.224E-10	0.0004	yes	no
Mercury	NG Combustion	2.60E-04	lb/1000 gal	3.824E-08	1.675E-07	4.818E-09	0.1	yes	no
<b>Other Pollutants</b>									
Pollutant	Pollutant Source	Emission Factor <sup>a</sup>	Emission Factor Unit	Potential Emissions (lb/hr)	Potential Emissions (TPY)	Potential Emissions (g/s)	CO <sub>2</sub> e Multiplier	Emissions (TPY CO <sub>2</sub> e)	
TOC	NG Combustion	1	lb/1000 gal	1.639E-03	7.180E-03	2.066E-04	0.0	0.000	
Methane	NG Combustion	0.2	lb/1000 gal	3.279E-04	1.436E-03	4.131E-05	25.0	0.036	
CO <sub>2</sub>	NG Combustion	12,500	lb/1000 gal	2.049E+01	8.975E+01	2.582E+00	1.0	90	
N <sub>2</sub> O	NG Combustion	0.9	lb/1000 gal	1.475E-03	6.462E-03	1.859E-04	298.0	2	
								92	
<b>Process Weight Rule - Not Applicable<sup>e</sup></b>									
<b>PM Grain Loading Standard<sup>f</sup></b>									
Pollutant	Pollutant Source	Potential Emissions (lb/hr)	Potential Emissions (gr/dscf)	Allowable Emissions (gr/dscf)	Meets Standard?				
PM	NG Combustion	n/a	< 0.01	0.015	yes				
Notes:									
(a) Emission Factors from AP-42 Chapter 1.5, Table 1.5-1: "LPG Propane Combustion"; plus A National Methodology and Emission Inventory for Residential Fuel Combustion Bernd H. Hanek PES, Inc. E-mail: bhaneke@mactec.com									
(b) All particulate emissions assumed to be PM2.5									
(c) IDAPA 58.01.01.006.106									
(d) IDAPA 58.01.01.221.01 (less than ten percent (10%) of the significant emission rates) = No PTC is Required for this source									
(e) IDAPA 58.01.01.701.02									
(f) IDAPA 58.01.01.676									
** NA - Not Applicable									

**Source H4: Propane-Fired Space Heater HAZARDOUS AIR POLLUTANT EMISSION RATES**

**Federal Hazardous Air Pollutants**

Pollutant	Emission Factor <sup>a</sup>	Emission Factor Unit	Potential Emissions (lb/hr)	Potential Emissions (g/s)	Emission Limit <sup>b</sup> (lb/hr)	Modeling Required? <sup>c</sup>
2-Methylnaphthalene	2.40E-05	lb/1000 gal	3.53E-09	4.45E-10	9.10E-05	no
3-Methylchloranthrene	1.80E-06	lb/1000 gal	2.65E-10	3.34E-11	9.10E-05	no
7,12-Dimethylbenz(a)anthracene	1.60E-05	lb/1000 gal	2.35E-09	2.96E-10	9.10E-05	no
Acenaphthene	1.80E-06	lb/1000 gal	2.65E-10	3.34E-11	9.10E-05	no
Acenaphthylene	1.80E-06	lb/1000 gal	2.65E-10	3.34E-11	9.10E-05	no
Anthracene	2.40E-06	lb/1000 gal	3.53E-10	4.45E-11	9.10E-05	no
Benzo(g,h,i)perylene	1.20E-06	lb/1000 gal	1.76E-10	2.22E-11	9.10E-05	no
Fluoranthene	3.00E-06	lb/1000 gal	4.41E-10	5.56E-11	9.10E-05	no
Phenanathrene	1.70E-05	lb/1000 gal	2.50E-09	3.15E-10	9.10E-05	no
Pyrene	5.00E-06	lb/1000 gal	7.35E-10	9.26E-11	9.10E-05	no
Fluorene	2.80E-06	lb/1000 gal	4.12E-10	5.19E-11	1.33E-01	no
<b>Benzo(a)pyrene</b>	1.20E-06	lb/1000 gal	1.76E-10	2.22E-11	2.00E-06	
Benzo(a)anthracene	1.80E-06	lb/1000 gal	2.65E-10	3.34E-11	POM	
Benzo(b)fluoranthene	1.80E-06	lb/1000 gal	2.65E-10	3.34E-11	POM	
Benzo(k)fluoranthene	1.80E-06	lb/1000 gal	2.65E-10	3.34E-11	POM	
Chrysene	1.80E-06	lb/1000 gal	2.65E-10	3.34E-11	POM	
Dibenzo(a,h)anthracene	1.20E-06	lb/1000 gal	1.76E-10	2.22E-11	POM	
Indeno(1,2,3-cd)pyrene	1.80E-06	lb/1000 gal	2.65E-10	3.34E-11	POM	
		SUM of POM	1.68E-09	2.11E-10	<b>2.00E-06</b>	no
Dichlorobenzene	1.20E-03	lb/1000 gal	1.76E-07	2.22E-08	2.00E+01	no
Formaldehyde	7.50E-02	lb/1000 gal	1.10E-05	1.39E-06	5.10E-04	no
Benzene	2.10E-03	lb/1000 gal	3.09E-07	3.89E-08	8.00E-04	no
Hexane	1.80E+00	lb/1000 gal	2.65E-04	3.34E-05	1.20E+01	no
Naphthalene	6.10E-04	lb/1000 gal	8.97E-08	1.13E-08	3.33E+00	no
Toluene	3.40E-03	lb/1000 gal	5.00E-07	6.30E-08	2.50E+01	no

0.001 TOTAL HAPs (tpy)

Notes:

(a1) Emission Factors from AP-42 Chapter 1.4, "Natural Gas Combustion".

(a1) EF xform to EI per C3H6 from AP-42 Chapter 1.5, Table 1, Note a: "LPG Propane Combustion".

(b) IDAPA 58.01.01.585 and 586

(c) IDAPA 58.01.01.210.05(b)

\* FNA - Factor Not Available

**TABLE 11 - INSIGNIFICANT ACTIVITY CALCULATIONS  
POTENTIAL TO EMIT - WOOD GRINDER ENGINE  
MILNER BUTTE LANDFILL  
BURLEY, IDAHO**

Equipment:	Diesel Engine
Engine Capacity:	700 hp

Operation	Maximum
Hours Per Year	100

**700 HP Grinder Engine**

Regulated Pollutants	Maximum Engine Rating (horsepower)	Max Hours of Operation (hours/year)	Emissions Factor (g/hp-hour)	Significant Threshold <sup>d</sup> (tons/year)	PTE Emissions (tons/year)
VOC <sup>a</sup>	700	100.0	0.24	4	0.02
NOx <sup>a</sup>	700	100.0	4.56	4	0.35
SOx <sup>b</sup>	700	100.0	0.183	4	0.01
CO <sup>a</sup>	700	100.0	2.60	10	0.20
PM <sub>10</sub> <sup>a,c</sup>	700	100.0	0.15	3	0.01

**Tier 2 Standards**

NMHC	0.24 g/hp-hr
NOx	4.56 g/hp-hr
CO	2.6 g/hp-hr
PM	0.15 g/hp-hr

a = Emission factors for pollutants are from EPA Off-Road Compression-Ignition Engine Standards.

b = Emission factor based on EPA diesel requirement of 0.05% sulfur from AP-42 Table 3.4-1.

c = For the purposes of calculating particulate, PM<sub>10</sub> = PM (all combustion PM assumed to be PM-10)

d = Significant Threshold values are based on 10% of the values shown in IDAPA 58.01.01.108.

**POTENTIAL TO EMIT - WOOD GRINDER**

Equipment Type:	Portable Tub Grinder
Typical Operation (70%):	540 tons/year

Operation	Maximum
Hour Per Year	100
Tons Pear Year	540

**Particulate Emissions from Materials Processing**

	Green/Wood Waste	Handling PM <sup>10</sup> Factor <sup>a</sup>	PM <sup>10</sup> Emissions
	tons/year	pounds/ton	tons/year
Maximum:	540	0.0011	0.00030

<sup>a</sup> Particulate emissions factors from AP-42, Chapter 11.19 (Crushed Stone Processing, Pulverized Mineral Processing [Table 11.19.2-2]).

**TABLE 2.  
LANDFILL GAS NMOC AND VOC EMISSIONS (EU 01)  
MILNER BUTTE LANDFILL  
BURLEY, IDAHO**

Gas / Pollutant	Total PTE Production <sup>1,2</sup> (tons/yr)	Total Actual Production <sup>1,2</sup> (tons/yr)	Fugitive PTE LFG <sup>3</sup> (tons/yr)	Fugitive Actual LFG <sup>3</sup> (tons/yr)	Non-Fugitive PTE LFG <sup>4</sup> (tons/yr)	Non-Fugitive Actual LFG <sup>4</sup> (tons/yr)
NMOC	232.59	91.38	58.15	22.85	2.12	0.80
VOCs <sup>2</sup>	90.71	68.03	22.68	17.01	0.83	0.31

**Notes:**

- <sup>1</sup> These emission rates were calculated based on the U.S. EPA LandGEM v3.02 model for 2017.
- <sup>2</sup> VOCs are calculated at 39% of NMOC (by weight) per AP-42, Table 2.4-2 for No or Unknown co-disposal.
- <sup>3</sup> Based on assumed GCCS gas collection efficiency of 75% per AP-42 paragraph 2.4.4.2.
- <sup>4</sup> Emissions after combustion in the flare and release from flare stack.

CAS	COMPOUNDS <sup>1</sup>	Molecular Weight (g/Mol)	Concentration of Compounds Found in LFG <sup>2</sup> (ppmv)	Fugitive PTE <sup>3</sup> (tons/yr)	Fugitive PTE <sup>3</sup> (lb/hr)	Fugitive Actual Emissions <sup>3</sup> (tons/yr)	Fugitive Actual Emissions <sup>3</sup> (lb/hr)
<b>TOXIC AIR POLLUTANT</b>							
71-55-6	1,1,1-Trichloroethane (methyl chloroform)	133.42	0.1680	1.26E-02	2.88E-03	4.95E-03	1.13E-03
79-34-5	1,1,2,2-Tetrachloroethane	167.85	0.0700	6.61E-03	1.51E-03	2.60E-03	5.93E-04
75-34-3	1,1-Dichloroethane	98.95	0.7410	4.12E-02	9.42E-03	1.62E-02	3.70E-03
75-35-4	1,1-Dichloroethene	96.94	0.0920	5.02E-03	1.15E-03	1.97E-03	4.50E-04
107-06-2	1,2-Dichloroethane	98.96	0.1200	6.68E-03	1.53E-03	2.62E-03	5.99E-04
78-87-5	1,2-Dichloropropane	112.98	0.0230	1.46E-03	3.34E-04	5.74E-04	1.31E-04
107-13-1	Acrylonitrile	53.06	0.0360	1.07E-03	2.45E-04	4.22E-04	9.64E-05
71-43-2	Benzene	78.11	0.9720	4.27E-02	9.75E-03	1.68E-02	3.83E-03
75-15-0	Carbon disulfide	76.13	0.3200	1.37E-02	3.13E-03	5.38E-03	1.23E-03
56-23-5	Carbon tetrachloride	153.84	0.0070	6.06E-04	1.38E-04	2.38E-04	5.43E-05
463-58-1	Carbonyl sulfide	60.07	0.1830	6.18E-03	1.41E-03	2.43E-03	5.54E-04
108-90-7	Chlorobenzene	112.56	0.2270	1.44E-02	3.28E-03	5.65E-03	1.29E-03
75-45-6	Chlorodifluoromethane (Freon 22)	86.47	0.3550	1.73E-02	3.94E-03	6.78E-03	1.55E-03
75-00-3	Chloroethane (ethyl chloride)	64.52	0.2390	8.67E-03	1.98E-03	3.41E-03	7.78E-04
67-66-3	Chloroform	119.39	0.0210	1.41E-03	3.22E-04	5.54E-04	1.26E-04
106-46-7	Dichlorobenzene	147	1.6070	1.33E-01	3.03E-02	5.22E-02	1.19E-02
75-09-2	Dichloromethane (methylene chloride)	84.94	3.3950	1.62E-01	3.70E-02	6.37E-02	1.45E-02
100-41-4	Ethylbenzene	106.16	6.7890	4.05E-01	9.26E-02	1.59E-01	3.64E-02
106-93-4	Ethylene dibromide	187.88	0.0460	4.86E-03	1.11E-03	1.91E-03	4.36E-04
110-54-3	Hexane	86.17	2.3240	1.13E-01	2.57E-02	4.42E-02	1.01E-02
7647-01-0	Hydrochloric acid	36.50	10.7420	2.21E-01	5.04E-02	8.66E-02	1.98E-02
7783-06-4	Hydrogen sulfide	34.08	84.0000	1.61E+00	3.68E-01	6.32E-01	1.44E-01
7439-97-6	Mercury (total)	200.61	0.0003	3.29E-05	7.52E-06	1.29E-05	2.95E-06
74-87-3	Methyl chloride (chloromethane)	50.49	0.2490	7.07E-03	1.61E-03	2.78E-03	6.34E-04
78-93-3	Methyl ethyl ketone	72.11	10.5570	4.28E-01	9.78E-02	1.68E-01	3.84E-02
108-10-1	Methyl isobutyl ketone	100.16	0.7500	4.23E-02	9.65E-03	1.66E-02	3.79E-03
127-18-4	Perchloroethylene (tetrachloroethylene)	165.83	1.1930	1.11E-01	2.54E-02	4.37E-02	9.98E-03
108-88-3	Toluene	92.13	25.4050	1.32E+00	3.01E-01	5.17E-01	1.18E-01
79-01-6	Trichloroethylene	131.38	0.6810	5.03E-02	1.15E-02	1.98E-02	4.51E-03
75-01-4	Vinyl chloride	62.50	1.0770	3.79E-02	8.64E-03	1.49E-02	3.40E-03
1330-20-7	Xylenes	106.16	16.5820	9.90E-01	2.26E-01	3.89E-01	8.88E-02
<b>TOTALS</b>	<b>TAPs</b>			<b>5.81</b>		<b>2.28</b>	

**NOTES:**

- <sup>1</sup> List of hazardous air pollutants (HAPs) regulated by U.S. EPA that are anticipated to be found in LFG as determined from a list in AP-42 Section 2.4.
- <sup>2</sup> Average concentration of compounds found in LFG based on "Waste Industry Air Coalition Comparison of Recent Landfill Gas Analyses with Historic AP-42"
- <sup>3</sup> Based on assumed GCCS gas collection efficiency of 75% per AP-42 paragraph 2.4.4.2; and U.S. EPA LandGEM v3.02 model for 2045.
- <sup>4</sup> Based on assumed GCCS gas collection efficiency of 75% per AP-42 paragraph 2.4.4.2; and U.S. EPA LandGEM v3.02 model for 2017.

Gas / Pollutant	Emission Rate <sup>1</sup>				
	(Mg/yr)	(m <sup>3</sup> /yr)	(av ft <sup>3</sup> /min)	(ft <sup>3</sup> /yr)	(tons/yr)
Total landfill gas (2017)	24,069	19,273,529	1,295	680,644,664	26,531.52
NMOC (2017)	83	23,128	1.6	816,774	91.38
Total landfill gas (2045)	61,270	49,060,000	3,297	1,732,903,200	67,537.92
NMOC (2045)	211	58,880	4.0	2,079,274	232.59

**Notes:**

- <sup>1</sup> These emission rates were calculated based on the U.S. EPA LandGEM v3.02 model for the site.
- <sup>2</sup> VOCs are calculated at 39% of NMOC (by weight) per AP-42, Table 2.4-2 for No or Unknown co-disposal.
- <sup>3</sup> Based on assumed GCCS gas collection efficiency of 75% per AP-42 paragraph 2.4.4.2.
- <sup>4</sup> Emissions after combustion in the flare and release from flare stack.

**TABLE 3.**  
**MAXIMUM POTENTIAL TO EMIT CONTROLLED EMISSIONS FROM LANDFILL GAS FLARE (EU 02)**  
**MILNER BUTTE LANDFILL**  
**BURLEY, IDAHO**

CAS	COMPOUNDS <sup>1</sup>	Molecular Weight (g/Mol)	Concentration of Compounds Found in LFG <sup>2</sup> (ppmv)	Pollutant Flow Rate to Flare <sup>3</sup> (tons/yr)	Compound-Specific Flare Destruction Efficiency <sup>4</sup>	Controlled LFG Emissions After Flare Destruction (lbs/hr)	Controlled LFG Emissions After Flare Destruction <sup>5</sup> (tons/yr)
<b>TOXIC AIR POLLUTANT</b>							
71-55-6	1,1,1-Trichloroethane (methyl chloroform)	133.42	0.1680	0.02	98.00%	1.05E-04	4.59E-04
79-34-5	1,1,2,2-Tetrachloroethane	167.85	0.0700	0.01	98.00%	5.49E-05	2.41E-04
75-34-3	1,1-Dichloroethane	98.95	0.7410	0.08	98.00%	3.43E-04	1.50E-03
75-35-4	1,1-Dichloroethene	96.94	0.0920	0.01	98.00%	4.17E-05	1.83E-04
107-06-2	1,2-Dichloroethane	98.96	0.1200	0.01	98.00%	5.55E-05	2.43E-04
78-87-5	1,2-Dichloropropane	112.98	0.0230	0.00	98.00%	1.21E-05	5.32E-05
107-13-1	Acrylonitrile	53.06	0.0360	0.00	99.70%	1.34E-06	5.87E-06
71-43-2	Benzene	78.11	0.9720	0.08	99.70%	5.32E-05	2.33E-04
75-15-0	Carbon disulfide	76.13	0.3200	0.02	99.70%	1.71E-05	7.48E-05
56-23-5	Carbon tetrachloride	153.84	0.0070	0.00	98.00%	5.03E-06	2.20E-05
463-58-1	Carbonyl sulfide	60.07	0.1830	0.01	99.70%	7.71E-06	3.38E-05
108-90-7	Chlorobenzene	112.56	0.2270	0.03	98.00%	1.19E-04	5.23E-04
75-45-6	Chlorodifluoromethane (Freon 22)	86.47	0.3550	0.03	98.00%	1.43E-04	6.28E-04
75-00-3	Chloroethane (ethyl chloride)	64.52	0.2390	0.02	98.00%	7.21E-05	3.16E-04
67-66-3	Chloroform	119.39	0.0210	0.00	98.00%	1.17E-05	5.13E-05
106-46-7	Dichlorobenzene	147	1.6070	0.24	98.00%	1.10E-03	4.84E-03
75-09-2	Dichloromethane (methylene chloride)	84.94	3.3950	0.30	98.00%	1.35E-03	5.90E-03
100-41-4	Ethylbenzene	106.16	6.7890	0.74	99.70%	5.05E-04	2.21E-03
106-93-4	Ethylene dibromide	187.88	0.0460	0.01	98.00%	4.04E-05	1.77E-04
110-54-3	Hexane	86.17	2.3240	0.20	99.70%	1.40E-04	6.15E-04
7647-01-0	Hydrochloric acid	36.50	10.7420	0.40	98.00%	9.25E-02	4.05E-01
7783-06-4	Hydrogen sulfide	34.08	84.0000	2.93	99.70%	2.01E-03	8.79E-03
7439-97-6	Mercury (total)	200.61	0.0003	0.00	0.00%	1.37E-05	6.00E-05
74-87-3	Methyl chloride (chloromethane)	50.49	0.2490	0.01	98.00%	5.88E-05	2.57E-04
78-93-3	Methyl ethyl ketone	72.11	10.5570	0.78	99.70%	5.34E-04	2.34E-03
108-10-1	Methyl isobutyl ketone	100.16	0.7500	0.08	99.70%	5.27E-05	2.31E-04
127-18-4	Perchloroethylene (tetrachloroethylene)	165.83	1.1930	0.20	98.00%	9.25E-04	4.05E-03
108-88-3	Toluene	92.13	25.4050	2.40	99.70%	1.64E-03	7.19E-03
79-01-6	Trichloroethylene	131.38	0.6810	0.09	98.00%	4.18E-04	1.83E-03
75-01-4	Vinyl chloride	62.50	1.0770	0.07	98.00%	3.15E-04	1.38E-03
1330-20-7	Xylenes	106.16	16.5820	1.80	99.70%	1.23E-03	5.41E-03
<b>TOTALS</b>	<b>TAPs</b>			<b>10.58</b>			<b>4.55E-01</b>
Total Non-Methane Organics (NMOs) as Hexane		86.18	1200	105.66	98.00%	4.83E-01	2.12
Volatile Organic Compounds (VOCs)		86.18	468	41.29	98.00%	1.89E-01	0.83
Criteria Air Pollutants	Molecular Weight (g/Mol)	Concentration of H <sub>2</sub> S in LFG (ppmv) <sup>6</sup>	Emission Factor (lb/MMBtu) <sup>6</sup>	Emission Factor (lb/hr/scfm methane)	Maximum Emissions from Flare (lbs/hr)	Maximum Emissions from Flare (tons/yr)	
Nitrogen oxides (NO <sub>x</sub> )			0.060		2.70	11.83	
Sulfur oxides (as SO <sub>2</sub> ) <sup>7</sup>	64.10	785.00			11.76	51.51	
Carbon monoxide (CO)			0.200		9.00	39.42	
Particulates (PM <sub>10</sub> )				0.001	0.76	3.34	
Particulates (PM <sub>2.5</sub> )				0.001	0.76	3.34	
<b>TOTAL CRITERIA POLLUTANTS</b>						<b>106.10</b>	

**NOTES:**

<sup>1</sup> List of hazardous air pollutants (HAPs) regulated by U.S. EPA that are anticipated to be found in LFG as determined from a list in AP-42 Section 2.4.

<sup>2</sup> Average concentration of compounds found in LFG based on "Waste Industry Air Coalition Comparison of Recent Landfill Gas Analyses with Historic AP-42 Values."

<sup>3</sup> Based on concentrations in Column E and proposed maximum landfill gas flow of flare (1,500 cubic feet per minute).

<sup>4</sup> Compound-specific flare destruction efficiencies: 98% for VOCs and NMOs, 98% for Halogenated Species, 99.7% for Non-Halogenated Species, 0% for Mercury (AP-42, Table 2.4-3).

<sup>5</sup> Controlled emissions of TAPs, NMOs, and VOCs after destruction in flare equals uncontrolled emissions x (1-flare destruction efficiency).

<sup>6</sup> Controlled emissions of NO<sub>x</sub>, SO<sub>x</sub>, CO, PM<sub>10</sub> and PM<sub>2.5</sub> were estimated with the following emission factors: NO<sub>x</sub> = 0.06 and CO = 0.2 lb/MMBtu (manufacturer's guarantee); PM-10 = 0.00102 lb/hr/dscfm (AP-42, Table 2.4-5); PM-2.5 = 0.00102 lb/hr/dscfm (AP-42, Table 2.4-5); and SO<sub>x</sub> (assume conversion of reduced sulfur at permit limit of 785 ppmv to sulfur dioxide).

<sup>7</sup> Complete conversion of sulfur compounds to sulfur dioxide is assumed.

**MODEL VARIABLES:**

Maximum capacity of flare: 1500 cfm  
 Estimated methane content of LFG: 50.0%

**TABLE 4.  
ACTUAL CONTROLLED EMISSIONS FROM LANDFILL GAS FLARE (EU 02)  
MILNER BUTTE LANDFILL  
BURLEY, IDAHO**

CAS	COMPOUNDS <sup>1</sup>	Molecular Weight (g/Mol)	Concentration of Compounds Found in LFG <sup>2</sup> (ppmv)	Pollutant Flow Rate to Flare <sup>3</sup> (tons/yr)	Compound-Specific Flare Destruction Efficiency <sup>4</sup>	Controlled LFG Emissions After Flare Destruction (lbs/hr)	Controlled LFG Emissions After Flare Destruction <sup>5</sup> (tons/yr)
<b>TOXIC AIR POLLUTANT</b>							
71-55-6	1,1,1-Trichloroethane (methyl chloroform)	133.42	0.1680	0.01	98.00%	3.98E-05	1.74E-04
79-34-5	1,1,2,2-Tetrachloroethane	167.85	0.0700	0.00	98.00%	2.09E-05	9.14E-05
75-34-3	1,1-Dichloroethane	98.95	0.7410	0.03	98.00%	1.30E-04	5.70E-04
75-35-4	1,1-Dichloroethene	96.94	0.0920	0.00	98.00%	1.58E-05	6.94E-05
107-06-2	1,2-Dichloroethane	98.96	0.1200	0.00	98.00%	2.11E-05	9.24E-05
78-87-5	1,2-Dichloropropane	112.98	0.0230	0.00	98.00%	4.62E-06	2.02E-05
107-13-1	Acrylonitrile	53.06	0.0360	0.00	99.70%	5.09E-07	2.23E-06
71-43-2	Benzene	78.11	0.9720	0.03	99.70%	2.02E-05	8.86E-05
75-15-0	Carbon disulfide <sup>7</sup>	76.13	0.3200	0.01	100.00%	0.00E+00	0.00E+00
56-23-5	Carbon tetrachloride	153.84	0.0070	0.00	98.00%	1.91E-06	8.38E-06
463-58-1	Carbonyl sulfide <sup>7</sup>	60.07	0.1830	0.00	100.00%	0.00E+00	0.00E+00
108-90-7	Chlorobenzene	112.56	0.2270	0.01	98.00%	4.54E-05	1.99E-04
75-45-6	Chlorodifluoromethane (Freon 22)	86.47	0.3550	0.01	98.00%	5.45E-05	2.39E-04
75-00-3	Chloroethane (ethyl chloride)	64.52	0.2390	0.01	98.00%	2.74E-05	1.20E-04
67-86-3	Chloroform	119.39	0.0210	0.00	98.00%	4.45E-06	1.95E-05
106-46-7	Dichlorobenzene	147	1.6070	0.09	98.00%	4.20E-04	1.84E-03
75-09-2	Dichloromethane (methylene chloride)	84.94	3.3950	0.11	98.00%	5.12E-04	2.24E-03
100-41-4	Ethylbenzene	106.16	6.7890	0.28	99.70%	1.92E-04	8.41E-04
106-93-4	Ethylene dibromide	187.88	0.0460	0.00	98.00%	1.54E-05	6.72E-05
110-54-3	Hexane	86.17	2.3240	0.08	99.70%	5.34E-05	2.34E-04
7647-01-0	Hydrochloric acid	36.50	10.7420	0.15	98.00%	3.51E-02	1.54E-01
7783-06-4	Hydrogen sulfide <sup>7</sup>	34.08	84.0000	1.11	100.00%	0.00E+00	0.00E+00
7439-97-6	Mercury (total)	200.61	0.0003	0.00	0.00%	5.20E-06	2.28E-05
74-87-3	Methyl chloride (chloromethane)	50.49	0.2490	0.00	98.00%	2.23E-05	9.78E-05
78-93-3	Methyl ethyl ketone	72.11	10.5570	0.30	99.70%	2.03E-04	8.88E-04
108-10-1	Methyl isobutyl ketone	100.16	0.7500	0.03	99.70%	2.00E-05	8.77E-05
127-18-4	Perchloroethylene (tetrachloroethylene)	165.83	1.1930	0.08	98.00%	3.51E-04	1.54E-03
108-88-3	Toluene	92.13	25.4050	0.91	99.70%	6.24E-04	2.73E-03
79-01-6	Trichloroethylene	131.38	0.6810	0.03	98.00%	1.59E-04	6.96E-04
75-01-4	Vinyl chloride	62.50	1.0770	0.03	98.00%	1.20E-04	5.24E-04
1330-20-7	Xylenes	106.16	16.5820	0.68	99.70%	4.69E-04	2.05E-03
<b>TOTALS</b>	<b>TAPs</b>			<b>4.02</b>			<b>1.70E-01</b>
Total Non-Methane Organics (NMOCs) as Hexane		86.18	1200	40.23	98.00%	1.84E-01	0.80
Volatile Organic Compounds (VOCs)		86.18	468	15.69	98.00%	7.16E-02	0.31
<b>Criteria Air Pollutants</b>		<b>Molecular Weight (g/Mol)</b>	<b>Concentration of Compound (ppmv) <sup>6</sup></b>	<b>Emission Factor (lb/MMBtu) <sup>6</sup></b>	<b>Emission Factor (lb/hr/scfm methane)</b>	<b>Estimated Emissions from Flare (lbs/hr)</b>	<b>Estimated Emissions from Flare (tons/yr)</b>
Nitrogen oxides (NOx)				0.060		1.03	4.49
Sulfur oxides (as SO <sub>2</sub> ) <sup>7</sup>		64.10	84.00			0.48	2.09
Carbon monoxide (CO)				0.200		3.42	14.98
Particulates (PM <sub>10</sub> )					0.001	0.29	1.27
Particulates (PM <sub>2.5</sub> )					0.001	0.29	1.27
<b>TOTAL CRITERIA POLLUTANTS</b>							<b>22.84</b>

**NOTES:**

<sup>1</sup> List of hazardous air pollutants (HAPs) regulated by U.S. EPA that are anticipated to be found in LFG as determined from a list in AP-42 Section 2.4.

<sup>2</sup> Average concentration of compounds found in LFG based on "Waste Industry Air Coalition Comparison of Recent Landfill Gas Analyses with Historic AP-42 Values."

<sup>3</sup> Based on concentrations in Column E and landfill actual gas flow to flare, 570 scfm.

<sup>4</sup> Compound-specific flare destruction efficiencies: 98% for VOCs and NMOCs, 98% for Halogenated Species, 99.7% for Non-Halogenated Species, 0% for Mercury (AP-42, Table 2.4-3).

<sup>5</sup> Controlled emissions of TAPs, NMOCs, and VOCs after destruction in flare equals uncontrolled emissions x (1- flare destruction efficiency).

<sup>6</sup> Controlled emissions of NOx, SOx, CO, PM10 and PM2.5 were estimated with the following emission factors: NOx = 0.06 and CO = 0.2 lb/MMBtu (manufacturer's guarantee); PM-10 = 0.00102 lb/hr/dscfm (AP-42, Table 2.4-5); PM-2.5 = 0.00102 lb/hr/dscfm (AP-42, Table 2.4-5); and SOx (assume conversion of reduced sulfur @ 84 ppmv to sulfur dioxide).

<sup>7</sup> Destruction efficiency of reduced sulfur compounds assumed to be 100%; i.e., complete conversion to sulfur dioxide.

**MODEL VARIABLES:**

Landfill gas generation rate for 2015: 570 cfm  
Current methane content of LFG: 50.0%



**TABLE 6.**  
**ACTUAL FUGITIVE DUST EMISSIONS FROM WIND EROSION OF STOCKPLIES (EU 03)**  
**MILNER BUTTE LANDFILL**  
**BURLEY, IDAHO**

Pollutant	Particle Size Multiplier k <sup>1</sup>	TSP Emission Factor <sup>2</sup>	Emission Factor <sup>3</sup>	Units	Total Exposed Area (acres)	Emissions Amount (tons/yr)
PM30	0.082	0.380	0.380	tons/acre-year	8.74	3.32
PM10	0.016	0.380	0.074	tons/acre-year	8.74	0.65
PM2.5	0.004	0.380	0.019	tons/acre-year	8.74	0.16

**Notes:**

<sup>1</sup> k values are from AP-42 Table 13.2-1.1.

<sup>2</sup> TSP (i.e., PM30) emission factor is 0.38 from AP-42 Table 11.9-4.

<sup>3</sup> Per AP-42, the emission factors are calculated as:  $E_{PMX} = E_{PM30} \times (k_{PMX}) / (k_{PM30})$

**TABLE 7.  
ACTUAL FUGITIVE DUST (PM<sub>x</sub>) EMISSIONS FROM PAVED AND UNPAVED  
ROADS FOR REFUSE VEHICLES (EU 04)  
MILNER BUTTE LANDFILL  
BURLEY, IDAHO**

Vehicle Type	Tare Vehicle Weight <sup>1</sup> (tons)	Loaded Vehicle Weight <sup>1</sup> (tons)	Average Weight (tons)	Annual Trips	Annual weight * trips
Commercial Refuse Vehicle	13.50	23.22	18.36	10,909.00	200,289.24
Refuse Transfer Truck	25.00	45.00	35.00	7,961.00	278,635.00
Self-Haul Customer (Small Trucks, other vehicles)	1.50	2.00	1.75	8,401.00	14,701.75
Roll Off	17.00	23.20	20.10	429.00	8,622.90
<b>Total</b>				<b>27,700.00</b>	<b>502,248.89</b>
<b>Mean Fleet Weight (W)</b>				<b>18.13</b>	

Note:

<sup>1</sup> Vehicle Weights based on average 2009 Gross and Tare scale data.

Paved Road Round Trip Length <sup>3</sup> (miles)	Unpaved Road Round Trip Length <sup>4</sup> (miles)	Max Annual Road Trips <sup>2</sup> on Paved Road	Max Annual Road Trips <sup>2</sup> on Unpaved <sup>5</sup> Road	Unpaved VMT/Year	Paved VMT/Year
0.40	1.60	27,700.00	19,299.00	30,878.40	7,719.60

Notes:

<sup>2</sup> Number of trips based on 2016 scale records.

<sup>3</sup> From the entrance to the public unloading area = 0.4 miles of paved road (roundtrip) based on road miles calculated by using the site map.

<sup>4</sup> From the entrance to the landfill active area = 0.4 mile of paved road and 1.6 mile of unpaved road (roundtrip).

<sup>5</sup> Unpaved number of trips does not include trips made by self-haul customers, since the road to the public unloading area is entirely paved.

**TABLE 7.  
ACTUAL FUGITIVE DUST (PM<sub>x</sub>) EMISSIONS FROM PAVED AND UNPAVED  
ROADS FOR REFUSE VEHICLES (EU 04)  
MILNER BUTTE LANDFILL  
BURLEY, IDAHO**

	PM <sub>2.5</sub>		PM <sub>10</sub>		PM <sub>30</sub>	
	Emission Factor for Paved Roads <sup>6</sup>	Emission Factor for Unpaved Roads <sup>7</sup>	Emission Factor for Paved Roads <sup>6</sup>	Emission Factor for Unpaved Roads <sup>7</sup>	Emission Factor for Paved Roads <sup>6</sup>	Emission Factor for Unpaved Roads <sup>7</sup>
	(lb/VMT)	(lb/VMT)	(lb/VMT)	(lb/VMT)	(lb/VMT)	(lb/VMT)
Uncontrolled	0.061	0.148	0.247	1.484	1.233	5.498
Controlled <sup>8</sup>	NA	0.037	NA	0.371	NA	1.374

	PM <sub>2.5</sub>		PM <sub>10</sub>		PM <sub>30</sub>	
	Annual Emissions for Paved Roads	Annual Emissions for Unpaved Roads	Annual Emissions for Paved Roads	Annual Emissions for Unpaved Roads	Annual Emissions for Paved Roads	Annual Emissions for Unpaved Roads
	(tons/year)	(tons/year)	(tons/year)	(tons/year)	(tons/year)	(tons/year)
<b>TOTAL</b>	0.234	0.573	0.952	5.729	4.758	21.220

**Notes:**

<sup>6</sup> Emission factor for paved roads  $E = [k \cdot (sL)^{0.91} \cdot (W)^{1.02}] \cdot (1-P/4n)$ , where:  
from AP-42 Chapter 13.2.1 (rev 1/11)

k = particle size multiplier =	PM <sub>2.5</sub>	PM <sub>10</sub>	PM <sub>30</sub>	(AP-42 Table 13.2.1-1)
	0.00054	0.0022	0.011	

sL = silt loading factor for MSW landfills = 7.4 g/m<sup>2</sup> (AP-42 Table 13.2.1-3)  
W = average weight (tons) of the vehicles  
P = number of "wet" days with at least 0.01 in of precipitation during 2016 = 82 days\*  
N = number of days in the averaging period \*(Data from Weather Underground)

<sup>7</sup> Emission factor for unpaved roads  $E = k \cdot (s/12)^a \cdot (W/3)^b \cdot (365-P)/365$ , where:  
from AP-42 Chapter 13.2.2 (rev 11/06)

s = surface material silt content (%) = 6.4 % for MSW landfills  
W = average weight (tons) of the vehicles

	PM <sub>2.5</sub>	PM <sub>10</sub>	PM <sub>30</sub>	(AP-42 Table 13.2.2-2)
k =	0.15	1.5	4.9	
a =	0.9	0.9	0.7	
b =	0.45	0.45	0.45	

P = number of "wet" days with at least 0.01 in of precipitation during 2016 = 82 days\*  
\*(Data from Weather Underground)

<sup>8</sup> Control efficiency is assumed to be 75% for unpaved roads based on AP-42 Figure 13.2.2-2.

**TABLE 8.  
FUGITIVE DUST (PM<sub>x</sub>) EMISSIONS SUMMARY  
MILNER BUTTE LANDFILL  
BURLEY, IDAHO**

Source	Total PM Emissions		
	PM <sub>2.5</sub> (tons/yr)	PM <sub>10</sub> (tons/yr)	TSP (tons/yr)
Piles	0.0004	0.003	0.01
Soil Pushing	N/A	0.04	N/A
Wind Erosion	0.16	0.65	3.32
Paved Roads	0.23	0.95	4.76
Unpaved Roads	0.57	5.73	21.22
<b>TOTAL</b>	<b>0.97</b>	<b>7.37</b>	<b>29.31</b>

N/A = Not Available

**APPENDIX B – 40 CFR 60 Subpart JJJJ**

(Taken from the SOB for PTC No. P-2011.0054 project 61834 issued on July 28, 2017)

## Section 4 Applicable Requirements

### 4.1 Federal Requirements

#### PREVENTION OF SIGNIFICANT DETERIORATION OF AIR QUALITY (40 CFR 52.21)

**Not Applicable.** Milner Butte Landfill is an existing minor source. The facility is not a major stationary source as defined in 40 CFR 52.21 (b)(1), nor is it undergoing any physical change at a stationary source not otherwise qualifying under paragraph 40 CFR 52.21(b)(1) as a major stationary source that would constitute a major stationary source by itself as defined in 40 CFR 52. Therefore in accordance with 40 CFR 52.21 (a)(2), PSD requirements are not applicable to this permitting action.

#### NSPS Applicability (40 CFR 60)

**Applicable** Because the Milner Butte Landfill has an existing enclosed flare (F1) and two proposed landfill gas engines (LFG Engines G1 and G2) that are associated with the landfill, the following NSPS requirements apply to this facility :

- 40 CFR 60, Subpart WWW - Standards of Performance for Municipal Solid Waste Landfills
- 40 CFR 60, Subpart JJJJ - Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

#### STANDARDS OF PERFORMANCE FOR MUNICIPAL WASTE LANDFILLS (40 CFR 60, SUBPART WWW)

**Applicable to Facility, Not Project.** These requirements are written into the existing PTC P-2011-0054 and DEQ's existing Statement of Basis for that PTC. They are not part of the current new PTC for the two added RICE engines.

#### STANDARDS OF PERFORMANCE FOR STATIONARY COMPRESSION IGNITION INTERNAL COMBUSTION ENGINES (40 CFR 60 Subpart JJJJ)

##### ***§60.4230 Am I subject to this subpart?***

*(a) The provisions of this subpart are applicable to manufacturers, owners, and operators of stationary spark ignition (SI) internal combustion engines (ICE) as specified in paragraphs (a)(1) through (6) of this section. For the purposes of this subpart, the date that construction commences is the date the engine is ordered by the owner or operator.*

*(4) Owners and operators of stationary SI ICE that commence construction after June 12, 2006, where the stationary SI ICE are manufactured :*

*(i) On or after July 1, 2007, for engines with a maximum engine power greater than or equal to 500 HP (except lean burn engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP);*

*(6) The provisions of §4236 of this subpart are applicable to all owners and operators of stationary SI ICE that commence construction after June 12, 2006.*

Applicable. Proposed LFG Engines G1 and G2 are stationary spark ignition engines that will commence construction after June 12, 2006. The proposed engines will have a power rating of more than 500 HP. Therefore the engines are subject to Subpart JJJJ.

**§60.4233 What emission standards must I meet if I am an owner or operator of a stationary SI internal combustion engine?**

(e) Owners and operators of stationary SI ICE with a maximum engine power greater than or equal to 75 KW (100 HP) (except gasoline and rich burn engines that use LPG) must comply with the emission standards in Table 1 to this subpart for their stationary SI ICE. For owners and operators of stationary SI ICE with a maximum engine power greater than or equal to 100 HP (except gasoline and rich burn engines that use LPG) manufactured prior to January 1, 2011 that were certified to the certification emission standards in 40 CFR part 1048 applicable to engines that are not severe duty engines, if such stationary SI ICE was certified to a carbon monoxide (CO) standard above the standard in Table 1 to this subpart, then the owners and operators may meet the CO certification (not field testing) standard for which the engine was certified.

**Table 1 to Subpart JJJJ of Part 60—NO<sub>x</sub>, CO, and VOC Emission Standards for Stationary Non-Emergency SI Engines [>100 HP] (Except Gasoline and Rich Burn LPG), Stationary SI Landfill/Digester Gas Engines, and Stationary Emergency Engines >25 HP**

Engine type and fuel	Maximum engine power	Manufacture date	Emission standards <sup>a</sup>					
			g/HP-hr			ppmvd at 15% O <sub>2</sub>		
			NO <sub>x</sub>	CO	VOC <sub>a</sub>	NO <sub>x</sub>	CO	VOC <sup>a</sup>
Landfill/Digester Gas (except lean burn 500<HP<1,350)	HP>500	7/1/2010	2.0	5.0	1.0	150	610	80

<sup>a</sup>Owners and operators of stationary non-certified SI engines may choose to comply with the emission standards in units of either g/HP-hr or ppmvd at 15 percent O<sub>2</sub>.

<sup>b</sup>Owners and operators of new or reconstructed non-emergency lean burn SI stationary engines with a site rating of greater than or equal to 250 brake HP located at a major source that are meeting the requirements of 40 CFR part 63, subpart ZZZZ, Table 2a do not have to comply with the CO emission standards of Table 1 of this subpart.

The emission standards applicable to emergency engines between 25 HP and 130 HP are in terms of NO<sub>x</sub> + HC.

"For purposes of this subpart, when calculating emissions of volatile organic compounds, emissions of formaldehyde should not be included.

Applicable. The proposed LFG engines will comply with the emission standards as shown above in Table 1 to Subpart JJJJ.

**§60.4234 How long must I meet the emission standards if I am an owner or operator of a stationary SI internal combustion engine?**

Owners and operators of stationary SI ICE must operate and maintain stationary SI ICE that achieve the emission standards as required in §60.4233 over the entire life of the engine.

**Applicable.** The proposed engines must meet the emission standards over the entire life of the engines.

**§60.4236 What is the deadline for importing or installing stationary SI ICE produced in previous model years?**

(b) After July 1, 2009, owners and operators may not install stationary SI ICE with a maximum engine power of greater than or equal to 500 HP that do not meet the applicable requirements in §60.4233, except that lean burn engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP that do not meet the applicable requirements in §60.4233 may not be installed after January 1, 2010.

**Not Applicable.** The proposed engines will not be ordered until after January 1, 2010.

**§60.4243 What are my compliance requirements if I am an owner or operator of a stationary SI internal combustion engine?**

(b) If you are an owner or operator of a stationary SI internal combustion engine and must comply with the emission standards specified in §60.4233(d) or (e), you must demonstrate compliance according to one of the methods specified in paragraphs (b)(1) and (2) of this section.

(2) Purchasing a non-certified engine and demonstrating compliance with the emission standards specified in §60.4233(d) or (e) and according to the requirements specified in §60.4244, as applicable, and according to paragraphs (b)(2)(i) and (ii) of this section.

(ii) If you are an owner or operator of a stationary SI internal combustion engine greater than 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test and conduct subsequent performance testing every 8,760 hours or 3 years, whichever comes first, thereafter to demonstrate compliance.

**Applicable.** The permittee will keep a maintenance plan and records for minimizing emissions. Performance tests will be performed according to the schedule stated above.

(g) It is expected that air-to-fuel ratio controllers will be used with the operation of three-way catalysts/non-selective catalytic reduction. The AFR controller must be maintained and operated appropriately in order to ensure proper operation of the engine and control device to minimize emissions at all times.

**Not Applicable.** Engines G1 and G2 design does not include three-way catalysts/non-selective catalytic reduction, or associated air-to-fuel ratio controllers.

**§60.4244 What test methods and other procedures must I use if I am an owner or operator of a stationary SI internal combustion engine?**

Owners and operators of stationary SI ICE who conduct performance tests must follow the procedures in paragraphs (a) through (f) of this section.

(a) Each performance test must be conducted within 10 percent of 100 percent peak (or the highest achievable) load and according to the requirements in §60.8 and under the specific conditions that are specified by Table 2 to §60.4244.

(b) You may not conduct performance tests during periods of startup, shutdown, or malfunction, as specified in §60.8(c). If your stationary SI internal combustion engine is non-operational, you do not need to startup the engine solely to conduct a performance test; however, you must conduct the performance test immediately upon startup of the engine.

(c) You must conduct three separate test runs for each performance test required in this section, as specified in §60.8(f). Each test run must be conducted within 10 percent of 100 percent peak (or the highest achievable) load and last at least 1 hour.

(d) To determine compliance with the NO<sub>x</sub> mass per unit output emission limitation, convert the concentration of NO<sub>x</sub> in the engine exhaust using Equation 1 of this section:

$$ER = (Cd \times 1.912 \text{ E-}03 \times Q \times T) / (\text{hp-hr}) \quad (\text{Eq. 1})$$

Where:

ER = Emission rate of NO<sub>x</sub> in g/HP-hr.

C<sub>d</sub> = Measured NO<sub>x</sub> concentration in parts per million by volume (ppmv).

1.912 x 10<sup>-3</sup> = Conversion constant for ppm NO<sub>x</sub> to grams per standard cubic meter at 20 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meter per hour, dry basis.

T = Time of test run, in hours.

HP-hr = Brake work of the engine, horsepower-hour (HP-hr).

(e) To determine compliance with the CO mass per unit output emission limitation, convert the concentration of CO in the engine exhaust using Equation 2 of this section:

$$ER = (Cd \times 1.164 \text{ E-}03 \times Q \times T) / (\text{hp-hr}) \quad (\text{Eq. 2})$$

Where:

ER = Emission rate of CO in g/HP-hr.

C<sub>d</sub> = Measured CO concentration in ppmv.

1.164 x 10<sup>-3</sup> = Conversion constant for ppm CO to grams per standard cubic meter at 20 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meters per hour, dry basis.

T = Time of test run, in hours.

HP-hr = Brake work of the engine, in HP-hr.

(f) For purposes of this subpart, when calculating emissions of VOC, emissions of formaldehyde should not be included. To determine compliance with the VOC mass per unit output emission limitation, convert the concentration of VOC in the engine exhaust using Equation 3 of this section:

$$ER = (Cd \times 1.833 \text{ E-}03 \times Q \times T) / (\text{hp-hr}) \quad (\text{Eq. 3})$$

Where:

*ER* = Emission rate of VOC in g/HP-hr.

*Ca* = VOC concentration measured as propane in ppmv.

$1.833 \times 10$  = Conversion constant for ppm VOC measured as propane, to grams per standard cubic meter at 20 degrees Celsius.

*Q* = Stack gas volumetric flow rate, in standard cubic meters per hour, dry basis.

*T* = Time of test run, in hours.

HP-hr = Brake work of the engine, in HP-hr.

(g) If the owner/operator chooses to measure VOC emissions using either Method 18 of 40 CFR part 60, appendix A, or Method 320 of 40 CFR part 63, appendix A, then it has the option of correcting the measured VOC emissions to account for the potential differences in measured values between these methods and Method 25A. The results from Method 18 and Method 320 can be corrected for response factor differences using Equations 4 and 5 of this section. The corrected VOC concentration can then be placed on a propane basis using Equation 6 of this section.

$$RF_i = (CM_i / CA_i) \quad (\text{Eq. 4})$$

Where:

*RF<sub>i</sub>* = Response factor of compound *i* when measured with EPA Method 25A.

*CM<sub>i</sub>* = Measured concentration of compound *i* in ppmv as carbon.

*CA<sub>i</sub>* = True concentration of compound *i* in ppmv as carbon.

$$C_{icorr} = RF_i \times C_{imeas} \quad (\text{Eq. 5})$$

where:

*C<sub>icorr</sub>* = Concentration of compound *i* corrected to the value that would have been measured by EPA Method 25A, ppmv as carbon.

*C<sub>imeas</sub>* = Concentration of compound *i* measured by EPA Method 320, ppmv as carbon.

$$C_{Peq} = 0.6098 \times C_{icorr} \quad (\text{Eq. 6})$$

Where:

*C<sub>Peq</sub>* = Concentration of compound *i* in mg of propane equivalent per DSCM.

**Applicable.** The permittee will conduct performance tests according to the procedures outlined above. Compliance will be demonstrated by periodic G1 and G2 source testing which will be required in this permit.

**§60.4245 What are my notification, reporting, and recordkeeping requirements if I am an owner or operator of a stationary SI internal combustion engine?**

Owners or operators of stationary SI ICE must meet the following notification, reporting and recordkeeping requirements.

(a) Owners and operators of all stationary SI ICE must keep records of the information in paragraphs (a)(1) through (4) of this section.

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

(2) Maintenance conducted on the engine.

... (3)... [re Certified Engine -- Not Applicable]

(4) If the stationary SI internal combustion engine is not a certified engine or is a certified engine operating in a non-certified manner and subject to §60.4243(a)(2), documentation that the engine meets the emission standards

(b)... [re Emergency Engines -- Not Applicable]

(c) Owners and operators of stationary SI ICE greater than or equal to 500 HP that have not been certified by an engine manufacturer to meet the emission standards in §60.4231 must submit an initial notification as required in §60.7(a)(1). The notification must include the information in paragraphs (c)(1) through (5) of this section.

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

(2) The address of the affected source;

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

(4) Emission control equipment; and

(5) Fuel used.

(d) Owners and operators of stationary SI ICE that are subject to performance testing must submit a copy of each performance test as conducted in §60.4244 within 60 days after the test has been completed.

**Applicable.** The proposed engines will not be certified by the manufacturer; and the permittee will comply with the requirements above. Compliance will be demonstrated by periodic G1 and G2 source testing and associated reporting which will be required in this permit.

**NESHAP Applicability (40 CFR 61)**

**Applicable.** Because the Milner Butte Landfill includes an active asbestos waste disposal facility, it is subject to *Subpart M National Emission Standard for Asbestos*, §61.154 Standard for active waste disposal sites. These activities are not associated with the engines that are the subject of this PTC).

## Appendix C - Facility Comments for Draft Permit

**The following comments were received from the facility on January 12, 2018:**

**Facility Comment on the permit:**

1. Section 2.2, page 5; update to reflect PTC issued on January 5, 2108 as follows—project 61985, issued January 5, 2018
2. Section 4 Landfill, pp-19 thru 30; needs PTC references updated to reflect PTC P—2011.0054 issuance date of 1/5/18
3. Section 4.19, page 26; revised bullet 3 to reflect every three months instead of every two weeks to reflect the updated condition in the PTC issued on 1/5/18
4. Section 4.21, pp-26 & 27; this section should be deleted due to its removal in the updated PTC issued 1/5/18
5. Check formatting throughout document to eliminate orphan references

**DEQ Response:** All requested changes are made.

**Facility Comment on the SOB:**

1. Section 3.2, p-6; Section needs to be updated to reflect the January 5, 2018 updated PTC
2. Section 5.5, p-8; Section needs to be updated to reflect new PTC issued on January 5, 2018 via project 61985
3. Section 4.19, p-14; third bullet needs to be modified to reflect the change to every three months instead of the stated every two weeks in the new PTC issued on January 5, 2018
4. Section 4.21, p-14; deleted to reflect updated permit issued January 5, 2018
5. Section 7.4, pp-21 and 22; provide additional clarification that Cf and XXX based are not applicable and the facility is subject to WWW

**DEQ Response:** All requested changes are made except for comment No.5 as the discussions on 40 CFR 60 Subparts Cf and XXX under Section 7.4 are taken from the applicant's 4/6/2017 submittal titled "SISW - Tier I Permit Renewal Incompleteness Response Letter v2". However, the applicant may propose a revised FRA for 40 CFR 60 Subparts Cf and XXX during the public comment period.