

Statement of Basis

Tier I Operating Permit No. T1-2012.0044

Project ID 61086

Kootenai Electric Cooperative- Fighting Creek

Coeur d'Alene, Idaho

Facility ID 055-00091

Final

December 12, 2012

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KW

Permit Writer

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

ASTM	American Society for Testing and Materials
Btu	British thermal unit
CAA	Clean Air Act
CAM	Compliance Assurance Monitoring
CFR	Code of Federal Regulations
CI	compression ignition
CMS	continuous monitoring systems
CO	carbon monoxide
CO ₂	carbon dioxide
CO ₂ e	CO ₂ equivalent emissions
COMS	continuous opacity monitoring systems
DEQ	Department of Environmental Quality
dscf	dry standard cubic feet
EPA	U.S. Environmental Protection Agency
GHG	greenhouse gases
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
lb/hr	pounds per hour
m	meters
MACT	Maximum Achievable Control Technology
MMBtu	million British thermal units
MMscf	million standard cubic feet
MRRR	Monitoring, Recordkeeping and Reporting Requirements
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO ₂	nitrogen dioxide
NO _x	nitrogen oxides
NSPS	New Source Performance Standards
O&M	operation and maintenance
O ₂	oxygen
PC	permit condition
PM	particulate matter
PM _{2.5}	particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers
PM ₁₀	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
ppm	parts per million
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
RICE	reciprocating internal combustion engines
<i>Rules</i>	<i>Rules for the Control of Air Pollution in Idaho</i>
scf	standard cubic feet
SIP	State Implementation Plan

SO ₂	sulfur dioxide
SO _x	sulfur oxides
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
U.S.C.	United States Code
VOC	volatile organic compound

2. INTRODUCTION AND APPLICABILITY

Kootenai Electric Cooperative – Fighting Creek (KEC) is a landfill gas to energy (LFGTE) facility, and is located at 22089 S. Highway 95, Coeur d’Alene, ID 83814. The facility is classified as a major facility, as defined by IDAPA 58.01.01.008.10.c, because it emits or has the potential to emit carbon monoxide (CO) above the major source threshold of 100 tons-per-year.

At the time of this permitting action, the facility is not a major source of HAP emissions. As a major facility, KEC is required to apply for a Tier I operating permit pursuant to IDAPA 58.01.01.301. The application for a Tier I operating permit must contain a certification from KEC 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 KEC.

The format of this Statement of Basis follows that of the permit with the exception of the facility's information discussed first followed by the scope, the applicable requirements and permit shield, and finally the general provisions.

KEC’s Tier I operating permit is organized into sections. They are as follows:

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 sufficient to assure compliance with each permit condition follows the permit condition.

Sections 4 – Internal Combustion Engines

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 5 - Non-applicable Requirements and Insignificant Activities

This section lists those requirements that the applicant has requested as non-applicable, and DEQ proposes to grant a permit shield in accordance with IDAPA 58.01.01.325.

If requested by the applicant, this section also lists 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 6 - 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

KEC is a landfill gas to energy (LFGTE) facility which employs two Caterpillar G3520C engine/generators (genset) each rated at 1.6 megawatt gross power output for a total gross power output of 3.2 MW. The engine brake horsepower for each engine is 2233. Power is generated at 4160 volts before being boosted to 24.9kV for distribution. The engine/generators are installed in a building located on the Fighting Creek Landfill (FCL), located at 22089 S. Highway 95, Coeur d'Alene, Id. 83814. The landfill has an existing landfill gas (LFG) collection system that is owned and operated by Kootenai County Solid Waste Department (KCSW Dept.) and will not be under common control with the LFGTE facility. The existing system consists of LFG collection wells and piping, a main collection header, and a blower/flare station. This system will remain in place. In normal operation, the engines consume all, or most, of the LFG and the blower/flare station will be off line, or handle only part, of the LFG. A new transmission pipeline is connected to the existing main collection header prior to the blower/flare station blower skid. This transmission pipeline will convey the LFG to a new LFG extraction system installed by KEC at the power generation facility. During normal operation, this system is used to draw a vacuum on the LFG collection piping. Vacuum set point is controlled solely by the County. LFG drawn from the landfill by the new LFG extraction system is delivered to the gensets for combustion. Generated power is delivered through a utility interconnection with KEC.

3.2 Facility Permitting History

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).

February 1, 2011 P-2010.0139 PROJ 60607, Initial permit to construct (PTC), Permit status (A)

4. APPLICATION SCOPE AND APPLICATION CHRONOLOGY

4.1 Application Scope

This permit is the initial Tier I operating permit for this facility.

4.2 Application Chronology

July 16, 2012	DEQ received an application from KEC for the facility's initial Tier I operating permit.
August 17, 2012	DEQ determined the application complete
August 31, 2012	DEQ provided the draft permit to the facility for review

September 17, 2012 DEQ provided the Tier I operating permit for public comment and affected states review. Public comment and affected states review ended on October 17, 2012.

October 19, 2012 DEQ provided the proposed permit to EPA Region 10 for review.

December 12, 2012 DEQ issued the final permit to the facility

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 – Internal Combustion Engines

Table 5.1 lists the emissions units and control devices associated with the internal combustion engines.

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

Emissions Unit ID No.	Emissions Unit Description	Control Device (if applicable)
Engine #1	Caterpillar G3520C, spark ignition 4 stroke lean burn design fired on landfill gas, installed in 2011	None
Engine #2	Caterpillar G3520C, spark ignition 4 stroke lean burn design fired on landfill gas, installed in 2011	None

The facility operates two gas-fired internal combustion engines. These engines use landfill gas as fuel to generate electricity. The engines are required to comply with 40 CFR 60, Subpart JJJJ.

5.2 Non-applicable Requirements for Which a Permit Shield is Requested

This section of the permit lists the regulations for which the facility has requested, and DEQ proposes to grant, a permit shield pursuant to IDAPA 58.01.01.325. The facility has not requested a permit shield.

5.3 Emissions Inventory

Table 5.22 summarizes the emissions inventory for this major 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 5.22 are the references for the emission factors used to estimate the emissions. The documentation provided by the applicant for the emissions inventory and emission factors is provided as Appendix A of this statement of basis.

Table 5.2 EMISSIONS INVENTORY - POTENTIAL TO EMIT (T/yr)

Source Description	PM ₁₀ T/yr	NO _x T/yr	SO ₂ T/yr	CO T/yr	VOC T/yr	Lead T/yr	HAP T/yr	GHG CO ₂ e T/yr
Internal Combustion Engine #1	3.45	12.94	11.96	77.62	3.74	0.00	0.39	16690.3
Internal Combustion Engine #2	3.45	12.94	11.96	77.62	3.74	0.00	0.39	16690.3
Total Emissions	6.90	25.88	23.92	155.24	7.48	0.00	0.77	33380.6

6. EMISSIONS LIMITS AND MRRR

This section contains the applicable requirements for this major facility. Where applicable, monitoring, recordkeeping and reporting requirements (MRRR) follow the applicable requirement and state how compliance with the applicable requirement is to be demonstrated.

This section is divided into several subsections. The first subsection lists the requirements that apply facility wide. The next subsection lists the emissions units- and emissions activities-specific applicable requirements. The final subsection contains the general provisions that apply to all major facilities subject to Idaho DEQ's Tier I operating permit requirements.

This section contains the following subsections:

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

MRRR

Immediately following each applicable requirement (permit condition) is the periodic monitoring regime upon which compliance with the underlying applicable requirement is demonstrated. A periodic monitoring regime consists of monitoring, recordkeeping and reporting requirements for each applicable requirement. If an applicable requirement does not include sufficient monitoring, recordkeeping and reporting 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. This is known as gap filling. In addition to the specific MRRR described under each permit condition, generally applicable facility-wide conditions and general provisions may also be required, such as monitoring, recordkeeping, performance testing, reporting, and certification requirements.

The discussion of each permit condition includes the legal and factual basis for the permit condition. If a permit condition was changed due to facility draft or public comments, a description of why and how the condition was changed 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 3.1 - 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 3.2 through 3.4)

- 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 3.5 - 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 3.6)

- 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 3.7 - 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 3.8 through 3.9)

- 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 3.10 through 3.14 - 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 3.10 through 3.14)

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 events 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 3.15 - 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 3.16 - Asbestos

The permittee shall comply with all applicable portions of 40 CFR 61, Subpart M when conducting any renovation or demolition activities at the facility.

[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 3.17 - Accidental Release Prevention

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 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 3.18 - Recycling and Emissions Reductions

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

[40 CFR 82, Subpart F]

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 3.19 - NSPS/NESHAP General Provisions

This facility is subject to NSPS Subpart JJJJ, and is therefore required to comply with applicable General Provisions.

[40 CFR 60, Subpart A]

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 3.20 - 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 3.21 through 3.24 - 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 3.23 and 3.24)

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 3.25 - 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 3.26 - 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

Internal Combustion Engines

Permit Condition 8 in P-2010.0139 PROJ 60607 was not incorporated into the Tier I operating permit because this condition was satisfied by the submittal of the Tier I application.

Permit Condition 4.1, Emission Limits

In accordance with 40 CFR 60.4233(e), the permittee shall comply with the emission standards in Table 1 of this subpart for both spark ignition SI engines. The table below summarizes the emission standards required for the two engines.

Table Error! Reference source not found..6.3. NO_x, CO, and VOC emission standards for stationary non-emergency SI engines ≥ 100 hp.

Engine type and fuel	Maximum Engine Power	Manufacture Date	Emission Standards ^a					
			g/hp-hr			ppmvd @ 15% O ₂		
			NO _x	CO	VOC ^b	NO _x	CO	VOC ^b
Landfill Gas	hp ≥ 500	7/1/2010	2.0	5.0	1.0	150	610	80

- Owners and operators of stationary non-certified SI engines may choose to comply with emission standards in units of either g/hp-hr or ppmvd @ 15% O₂.
- For the purposes 40 CFR 60, Subpart JJJJ, when calculating emissions of volatile organic compounds, emissions of formaldehyde should not be included.

MRRR - (Permit Conditions 4.10 and 4.13 through 4.16)

The facility is required to comply with the emissions standards when operating the two IC engines. The facility is required to report each instance where the requirements are not met.

Permit Condition 4.2, Opacity Limit

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

MRRR - (Permit Condition 3.8 and 3.9)

The facility is required to comply with the state opacity standard. The facility is required to report each instance where the requirements are not met.

Permit Condition 4.3, Odors

The permittee shall not allow, suffer, cause, or permit the emission of odorous gasses, liquids, or solids to the atmosphere in such quantities as to cause air pollution in accordance with IDAPA 58.01.01.776.01.

MRRR - (Permit Condition 3.5 through 3.6, and 4.9)

The facility is required to comply with all odor requirements and to minimize odorous gases that may be emitted. The facility is required to report each instance where the requirements are not met.

Permit Condition 4.4, Operation

The permittee shall operate and maintain the engines in a manner consistent with the manufacturer's recommendations.

MRRR - (Permit Conditions 4.10 and 4.13 through 4.16)

The facility is required to operate and maintain the engines according to the manufacturer's recommendations. The facility is required to report each instance where the requirements are not met. Although permit condition 4.4 is not a federal requirement, the recordkeeping under Subpart JJJJ was considered sufficient to ensure compliance.

Permit Condition 4.5, Maintenance Plan

In accordance with 40 CFR 60.4243(b)(2)(ii), the permittee shall keep a maintenance plan and must, to the extent practicable, maintain and operate the engines in the manner consistent with good air pollution control practice for minimizing emissions.

MRRR - (Permit Conditions 4.10 and 4.13 through 4.16)

The facility is required to operate and maintain the engines according to the general requirements. The facility is required to report each instance where the requirements are not met.

Permit Condition 4.6, Life Operation & Maintenance

In accordance with 40 CFR 60.4234, the permittee shall operate and maintain stationary SI engines that achieve the emission standards as required in 60.4233(e) over the entire life of each SI engine.

MRRR - (Permit Conditions 4.10 and 4.13 through 4.16)

The facility is required to comply with the emissions standards when operating the two IC engines. The facility is required to report each instance where the requirements are not met.

Permit Condition 4.7, AFR Controller Maintenance and Operation

In accordance with 40 CFR 60.4243(g), the permittee shall maintain and operate the AFR controller on each engine in order to ensure proper operation of the engine and control device to minimize emissions at all times.

MRRR - (Permit Conditions 4.10 and 4.13 through 4.16)

The facility is required to maintain and operate the AFR controller on the two engines. The facility is required to report each instance where the requirements are not met.

Permit Condition 4.8, Allowable Fuel

All engines shall burn only landfill gas.

MRRR

No MRRR has been required in the permit for this permit 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 4.11, Performance Test Schedule

In accordance with 40 CFR 60.4243(b)(2)(ii), the permittee shall conduct an initial performance test and conduct subsequent performance test every 8,760 hours or 3 years, whichever comes first, thereafter to demonstrate compliance on each engine.

- The permittee shall conduct the initial performance test within 60 days after achieving the maximum production rate, but not later than 180 days after initial startup.

MRRR - (Permit Conditions 4.10 and 4.13 through 4.16)

The facility is required to conduct initial performance tests and subsequent performance tests on the two engines. The facility is required to report each instance where the requirements are not met.

Permit Condition 4.12, Performance Test Procedures

In accordance with 40 CFR 60.4244, the permittee shall follow these procedures:

- 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 conditions that are specified by Table 2 to subpart JJJJ.
- The permittee may not conduct performance tests during periods of startup, shutdown, or malfunction, as specified §60.8(c). If your stationary SI engine is non-operational, the permittee does not need to startup the engine solely to conduct a performance test.
- The permittee 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.
- To determine compliance with the NO_x mass per unit output emission limitation for each engine, the permittee shall convert the concentration of NO_x in the engine exhaust using the following equation:

$$ER = \frac{C_d * 1.912 * 10^{-3} * Q * T}{HP - hr}$$

Where:

ER	=	Emission rate of NO _x in g/hp-hr.
C _d	=	Measured NO _x concentration in parts per million by volume (ppmv).
1.912 x 10 ⁻³	=	Conversion for ppm NO _x to grams per standard cubic meter @ 20 degrees Celsius.
Q	=	Stack gas volumetric flow rate, in standard cubic meter per hour, dry basis.
T	=	Time of test run, in hours.
1 HP-hr	=	Brake work of the engine, horsepower-hour.

- To determine compliance with the CO mass per unit output emission limitation, the permittee shall convert the concentration of CO in the engine exhaust using the following equation:

$$ER = \frac{C_d * 1.164 * 10^{-3} * Q * T}{HP - hr}$$

Where:

ER	=	Emission rate of CO in g/hp-hr.
C _d	=	Measured CO concentration in parts per million by volume (ppmv).
1.164 x 10 ⁻³	=	Conversion for ppm CO to grams per standard cubic meter @ 20 degrees Celsius.
Q	=	Stack gas volumetric flow rate, in standard cubic meter per hour, dry basis.
T	=	Time of test run, in hours.

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

- When calculating emissions of VOC, emissions of formaldehyde should not be included. To determine compliance with the VOC mass per unit output emission limitation, the permittee shall convert the concentration of VOC in the engine exhaust using the following equation:

$$ER = \frac{C_d * 1.833 * 10^{-3} * Q * T}{HP - hr}$$

Where:

ER = Emission rate of VOC in g/hp-hr.
C_d = Measured VOC concentration as propane in parts per million by volume (ppmv).
1.833 x 10⁻³ = Conversion for ppm VOC measured as propane to grams per standard cubic meter @ 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.

MRRR - (Permit Conditions 4.10 and 4.13 through 4.16)

The facility is required to conduct performance tests according to the performance test procedures. The facility is required to report each instance where the requirements are not met.

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 Kootenai County which is designated as attainment or unclassifiable for PM₁₀, PM_{2.5}, CO, NO₂, SO_x, and Ozone. Reference 40 CFR 81.313.

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

The facility-wide emissions from this facility have a potential to emit greater than 100 tons per year for CO as demonstrated previously in the Emissions Inventory Section of this analysis. Therefore, this facility is classified as a major facility, as defined in IDAPA 58.01.01.008.10, and is subject to Tier I permitting requirements.

7.3 PSD Classification (40 CFR 52.21)

The facility is not a major facility for the purposes of the federal prevention of significant deterioration (PSD) program as referenced by IDAPA 58.01.01.205 because the facility does not emit or has the potential to emit a regulated criteria air pollutant in amounts greater than or equal to the major threshold criteria of 250 T/yr. Greenhouse gases (GHG) are not subject to regulation at this facility because the facility does not emit or have the potential to emit GHG in amounts greater than or equal to the major threshold criteria of 100,000 T/yr CO₂e.

7.4 NSPS Applicability (40 CFR 60)

The facility is subject to the requirements of 40 CFR 60, Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines. Refer to PTC No. P-2010.0139 PROJ 60607, issued February 1, 2011 for the NSPS applicability break down for Internal Combustion Engine #1 and Engine #2.

Gas collected from Kootenai County Solid Waste Department is processed in a treatment system prior to combustion by the Internal Combustion engines. This gas treatment system, owned and operated by KEC, is subject to 40 CFR 60, Subpart WWW – Standards of Performance for Municipal Solid Waste Landfills. Refer to PTC No. P-2010.0139, issued February 1, 2011 for the NSPS applicability break down.

7.5 NESHAP Applicability (40 CFR 61)

The facility is not subject to any National Emission Standards for Hazardous Air Pollutants (NESHAP) in 40 CFR 61.

7.6 MACT Applicability (40 CFR 63)

Because the facility is subject to 40 CFR 60, Subpart JJJJ, it is therefore in compliance with 40 CFR 63, Subpart ZZZZ and no further Maximum Achievable Control Technology (MACT) requirements in 40 CFR 63. Refer to PTC No. P-2010.0139 PROJ 60607, issued February 1, 2011 for the NSPS applicability break down for Internal Combustion Engine #1 and Engine #2.

7.7 CAM Applicability (40 CFR 64)

Individual permit units at facilities that are subject to Title V permitting requirements (Tier I permits) may be subject to the requirements of 40 CFR Part 64, Compliance Assurance Monitoring (CAM). 40 CFR Part 64 requires CAM for units that meet the following three criteria:

- 1) In accordance with 40 CFR 64.2(a)(1), the unit must have an emission limit for the pollutant;
- 2) In accordance with 40 CFR 64.2(a)(2), the unit must have add-on controls for the pollutant; these are devices such as flue gas recirculation (FGR), baghouses, and catalytic oxidizers; and
- 3) In accordance with 40 CFR 64.2(a)(3), the unit must have a pre-control potential to emit of greater than the major source thresholds.

The Internal Combustion engines do not have add-on controls. Therefore, CAM (Subpart 64) does not apply to this facility.

7.8 Acid Rain Permit (40 CFR 72-75)

KEC is not an affected facility as defined in 40 CFR 72 through 75. Acid Rain permit requirements are therefore not applicable.

8. PUBLIC COMMENT

As required by IDAPA 58.01.01.364, a public comment period was made available to the public from September 17, 2012 to October 17, 2012. During this time, no comments were submitted in response to DEQ's proposed action.

9. EPA REVIEW OF PROPOSED PERMIT

As required by IDAPA 58.01.01.366, DEQ provided the proposed permit to EPA Region 10 for it review and comment on October 19, 2012 via e-mail. On December 5, 2012, EPA Region 10 responded to DEQ via e-mail indicating that EPA will not be reviewing the proposed permit action, will not object to its issuance, and that the permit is now eligible for issuance.

Appendix A - Emissions Inventory

Attachment B
Potential To Emit Emission Source Estimates for Proposed IC Engines
Kootenia Electric, Fighting Creek Landfill, Cour d' Alene, ID

CAS	COMPOUNDS ¹	Molecular Weight	Concentration of Compounds Found in LFG ⁸	LFG Flow Rate to IC Engine ² (Uncontrolled)	IC Engine Destruction Efficiency ³	Hourly Emission from IC Engine (Controlled)	Daily Emission from IC Engine (Controlled)	Annual Emission from IC Engine	Annual Emission Two IC Engine	IDAPA Air Toxics Trigger Emissions Level	Hourly Emission Two IC Engine	PTE Over IDAPA Trigger Emissions Level
Toxic air Contaminants (TACs)												
71-55-6	1,1,1-Trichloroethane (methyl chloroform)	133.42	1.68E-01	6.37E-03	93.0%	1.34E-04	3.21E-03	1.17E+00	2.34E+00	1.27E+02	2.87E-04	No
79-34-5	1,1,2,2-Tetrachloroethane	167.85	7.00E-02	4.39E-03	93.0%	7.01E-05	1.68E-03	6.14E-01	1.23E+00	1.10E-05	1.40E-04	Yes
75-34-3	1,1-Dichloroethane (ethylidene dichloride)	98.95	7.41E-01	2.74E-02	93.0%	4.37E-04	1.05E-02	3.89E+00	7.66E+00	2.50E-04	8.75E-04	Yes
75-35-4	1,1-Dichloroethane (vinylidene chloride)	96.94	9.20E-02	3.33E-03	93.0%	5.32E-05	1.28E-03	4.66E-01	9.32E-01	1.30E-04	1.06E-04	No
107-06-2	1,2-Dichloroethane (ethylidene dichloride)	98.96	1.20E-01	4.43E-03	93.0%	7.09E-05	1.70E-03	6.21E-01	1.24E+00	2.50E-04	1.42E-04	No
78-87-5	1,2-Dichloropropane (Propylene dichloride)	112.98	3.60E-02	9.70E-04	93.0%	1.55E-05	3.72E-04	1.36E-01	2.72E-01	2.31E+01	3.10E-05	No
107-13-1	Acrylonitrile	53.06	2.30E-02	7.13E-04	86.1%	2.26E-05	5.43E-04	1.98E-01	3.96E-01	9.80E-05	4.53E-05	No
71-43-2	Benzene	78.11	9.72E-01	2.89E-02	86.1%	9.00E-04	2.16E-02	7.88E+00	1.58E+01	8.00E-04	1.80E-03	Yes
75-15-0	Carbon disulfide	76.13	3.20E-01	9.09E-03	86.1%	2.89E-04	6.99E-03	2.53E+00	5.06E+00	2.00E+00	5.77E-04	No
56-23-5	Carbon tetrachloride	153.84	7.00E-03	4.02E-04	93.0%	6.43E-06	1.54E-04	5.63E-02	1.13E-01	4.40E-04	1.29E-05	No
463-58-1	Carbonyl sulfide	60.07	1.83E-01	4.10E-03	93.0%	6.56E-05	1.57E-03	5.75E-01	1.15E+00	2.70E-02	1.31E-04	No
108-90-7	Chlorobenzene	112.56	2.27E-01	9.54E-03	93.0%	1.52E-04	3.66E-03	1.34E+00	2.87E+00	2.33E+01	3.05E-04	No
75-45-6	Chlorodifluoromethane (Freon 22)	86.47	3.55E-01	1.15E-02	93.0%	1.83E-04	4.40E-03	1.60E+00	3.21E+00	NA	3.66E-04	No
75-00-3	Chloroethane (ethyl chloride)	64.52	2.39E-01	5.78E-03	93.0%	9.20E-05	2.21E-03	8.06E-01	1.61E+00	1.76E+02	1.84E-04	No
67-66-3	Chloroform	119.39	2.10E-02	9.36E-04	93.0%	1.50E-05	3.59E-04	1.31E-01	2.62E-01	2.80E-04	2.99E-05	No
106-46-7	Dichlorobenzene (1,4-Dichlorobenzene)	147.00	1.81E+00	8.82E-02	93.0%	1.41E-03	3.38E-02	1.23E+01	2.47E+01	3.00E+01	2.82E-03	No
75-09-2	Dichloromethane (Methylene Chloride)	84.94	3.40E+00	1.08E-01	93.0%	1.72E-03	4.13E-02	1.51E+01	3.01E+01	1.60E-03	3.44E-03	Yes
100-41-4	Ethylbenzene	106.16	6.79E+00	2.69E-01	86.1%	8.54E-03	2.05E-01	7.48E+01	1.50E+02	2.90E+01	1.71E-02	No
106-93-4	Ethylene dibromide (1,2-Dibromoethane)	187.88	4.60E-02	3.23E-03	93.0%	5.16E-05	1.24E-03	4.52E-01	9.03E-01	3.00E-05	1.03E-04	Yes
110-54-3	Hexane	86.18	2.32E+00	7.48E-02	86.1%	2.37E-03	5.69E-02	2.08E+01	4.16E+01	1.20E+01	4.75E-03	No
7439-97-6	Mercury (total) ⁴	200.61	2.92E-04	4.37E-05	-	9.99E-06	2.40E-04	8.79E-02	1.75E-01	1.00E-03	2.00E-05	No
74-87-3	Methyl chloride (chloromethane)	50.49	2.49E-01	9.39E-03	93.0%	2.14E-03	5.14E-02	1.88E+01	3.75E+01	6.87E+00	4.29E-03	No
78-83-3	Methyl ethyl ketone	72.11	1.06E+01	2.84E-01	86.1%	9.02E-03	2.16E-01	7.90E+01	1.58E+02	3.93E+01	1.80E-02	No
108-10-1	Methyl isobutyl ketone	100.16	7.50E-01	2.80E-02	93.0%	4.48E-04	1.08E-02	3.93E+00	7.85E+00	1.37E+01	8.96E-04	No
127-18-4	Perchloroethylene (tetrachloroethylene)	165.83	1.19E+00	7.39E-02	93.0%	1.18E-03	2.83E-02	1.03E+01	2.07E+01	1.30E-02	2.36E-03	No
108-88-3	Toluene	92.13	2.54E+01	8.74E-01	86.1%	2.77E-02	6.66E-01	2.43E+02	4.86E+02	2.50E+01	5.55E-02	No
79-01-6	Trichloroethylene (trichloroethene)	131.38	6.81E-01	3.34E-02	93.0%	5.34E-04	1.28E-02	4.68E+00	9.35E+00	1.79E+01	1.07E-03	No
75-01-4	Vinyl chloride	62.50	1.08E+00	2.51E-02	93.0%	4.02E-04	9.84E-03	3.52E+00	7.04E+00	9.40E-04	8.03E-04	No
1330-20-7	Xylenes	106.16	1.66E+01	6.57E-01	86.1%	2.09E-02	5.01E-01	1.83E+02	3.65E+02	2.90E+01	4.17E-02	No
Totals: TACs				2.65E+00		7.89E-02	1.894	6.91E+02	1.38E+03			

**Potential To Emit Emission Source Estimates for Proposed IC Engines
Kootenia Electric, Fighting Creek Landfill, Cour d' Alene, ID**

Secondary Emissions

COMPOUNDS	Molecular Weight	Concentration of Compounds Found in LFG ²	LFG Flow Rate to IC Engine ³ (Uncontrolled)	IC Engine Destruction Efficiency ⁴	Hourly Emission from IC Engine (Controlled)	Daily Emission from IC Engine (Controlled)	Annual Emission from IC Engine	Annual Emission Two IC Engine	IDAPA Air Toxics Trigger Emissions Level	Hourly Emission Two IC Engine	PTE Over IDAPA Trigger Emissions Level
	g/mol	ppmv	tons/yr	%	lb/hr	lb/day	lb/yr	lb/yr	lb/hr	lb/hr	Yes/No
Hydrogen Chloride ¹⁰	36.50	10.74	1.46E-01	0.00%	3.34E-02	1.46E-01	2.93E+02	5.85E+02	5.00E-02	6.68E-02	Yes

COMPOUNDS	Emission Factor	IC Engine Destruction Efficiency	Hourly Emission from IC Engine (Controlled)	Daily Emission from IC Engine (Controlled)	Annual Emission from IC Engine	Annual Emission Two IC Engine	IDAPA Air Toxics Trigger Emissions Level	Hourly Emission Two IC Engine	PTE Over IDAPA Trigger Emissions Level
	lbs/MM scf of CH ₄ burned	%	lb/hr	lb/day	lb/yr	lb/yr	lb/hr	lb/hr	Yes/No
Formaldehyde ¹¹	4.88E+00	0.00%	8.01E-02	1.92E+00	7.02E+02	1.40E+03	5.10E-04	1.60E-01	Yes

Criteria Air Pollutants

Nitrogen Oxides (NO _x) Carbon Monoxide (CO) Sulfur Dioxide (SO ₂) ⁵ Volatile Organic Compounds (VOC) ^{6,7} Particulate Matter (PM ₁₀) ⁸	Molecular Weight	Max Concentration of Compounds Found in LFG	Emission Factor	Emission Factor	IC Engine Destruction Efficiency	Potential To Emit Emissions Single IC Engine			Potential To Emit Emissions Two IC Engines		
						g/bhp-hr	lb/MM scf of methane	lbs/hr	lbs/day	tons/yr	lbs/hr
		ppmv	0.600	48,000	2.95	70.89	12.94	5.91	141.78	25.87	
	64.06	500	3.600		17.72	425.34	77.62	35.45	850.68	155.25	
		120			2.73	65.52	11.96	5.46	131.05	23.92	
					0.85	20.51	3.74	1.71	41.02	7.49	
					0.79	18.90	3.45	1.58	37.81	6.90	

**Potential To Emit Emission Source Estimates for Proposed IC Engines
Kootenia Electric, Fighting Creek Landfill, Cour d' Alene, ID**

Greenhouse (GHG) Types

Anthropogenic	Biogenic	Unregulated	Regulated
IC Engines	IC Engines	IC Engines	IC Engines
CH ₄	CO ₂	CO ₂	CH ₄
N ₂ O			N ₂ O

506 BTU/scf LFG
 52.07 ¹² kg CO₂/MMBTU CH₄
 907 kg/ton
 0.0032 ¹² kg CH₄/MMBTU
 0.00063 ¹² kg N₂O/MMBTU
 35.31 scf/m³
 23.69 ¹³ L/mol
 44.01 g/mol

GHG Potential to Emit Emissions - Two IC Engines

Control Device	LFG Collected (scf/year)	CH ₄ from Control Device ton/yr	N ₂ O from Methane Combustion ton/yr	CO ₂ from Methane Combustion ton/yr	CO ₂ Passing Through Control ton/yr
2 IC Engines	575,006,400	1.03	0.20	16,703.35	16,877.23

Source	tons CO ₂ e/yr	Biogenic?	Fugitive?
2 IC Engines Stack Carbon Dioxide	33,380.58	Yes	No
2 IC Engines Methane from Combustion	1.03	No	No
2 IC Engines Nitrous Oxide from Combustion	0.20	No	No

Variables:

MODEL INPUT VARIABLES:	POTENTIAL TO EMIT
Methane Concentration	50.0%
Genset horsepower	2233 hp
Fuel Value	504 Btu/scf
Landfill Gas Collection Rate (single IC Engine)	547 SCFM
Dry Gas Exhaust Flow Rate	4,307 SCFM @ 9% O ₂
Engine Fuel Consumption	17.32 MMBTU/hr (HHV)
Landfill Gas Combustion Factor	4.773 SCFM of Dry Exhaust Gas/SCFM of Methane

Criteria pollutant emission factors used for IC Engines

Pollutant	Emission factor	Data Source
NMOCs/VOCs:	120 ppmv as methane @ 3% oxygen	BACT/NSPS
CO	3.6 g/bhp-hr	Manufacturer's Guarantee and BACT
NO _x	0.6 g/bhp-hr	Manufacturer's Guarantee and BACT
SO ₂	500 ppmv	Site Specific with factor of safety
P-M	48 lb/MM discf of methane	AP-42

Potential To Emit Emission Source Estimates for Proposed IC Engines Kootenia Electric, Fighting Creek Landfill, Cour d' Alene, ID

Notes:

- ¹ List of toxic air contaminants (TACs) compounds found in landfill gas, as determined from a list in AP-42 Tables 2.4-1 ("Uncontrolled Landfill Gas Concentrations") and 2.4-2.
- ² Based on a maximum flow rate into the IC Engine of 547 scfm @ 50% methane.
- ³ Values based on AP-42, Table 2.4-3: 98% for total NMOCs, 93% for halogenated species, and 86.1% for non-halogenated species.
- ⁴ Concentration of Mercury based on EPA AP-42 Section 2.4.
- ⁵ Based on site-specific data with margin of safety for changing waste characteristics.
- ⁶ VOC emissions are considered same as NIMOC emissions, per common practice.
- ⁷ Emissions estimated per standard dry gas exhaust flow rate of 4,307 scfm, based on exhaust data provided by the manufacturer (11,038 acfm at 8% oxygen and 898 F)
- ⁸ PM_{10} Value based on AP-42 (48 lb/MM gscf of methane).
- ⁹ Average concentration of compounds found in LFG based on "Waste Industry Air Coalition" (WIAC) Comparison of Recent Landfill Gas Analyses, or AP-42 if WIAC values not available.
- ¹⁰ HCl is produced by combustion of halogenated compounds containing chlorine. Combustion process assumed to convert 100% of inlet halogenated concentration levels into hydrogen chloride.
- ¹¹ The formaldehyde emissions factor used is typical for this type of project.
- ¹² The emission factors are from 40 CFR 98 Tables C-1 (CO₂) and Table C-2 (methane and N₂O).
- ¹³ The molar volume of 23.69 L/mol is for a standard temperature of 60 °F.

Appendix B - Facility Comments for Draft Permit

No comments were received from the facility.