

RECEIVED

JUL 16 2012

DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE A Q PROGRAM

July 11, 2012

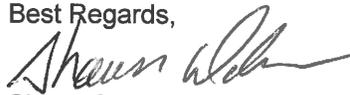
Air Quality Program Office – Application Processing
Department of Environmental Quality
1410 N. Hilton
Boise, ID 83706-1255

Re: Idaho DEQ Tier I Permit Application
Fighting Creek LFGE Facility ID No. 055-00091

Dear Sir or Madam:

Enclosed please find Kootenai Electric Cooperative's Tier I Permit application for our Fighting Creek Landfill Gas to Energy Plant. I have also enclosed a CD with the pertinent data. Please let me know if any additional information or fees are required to process this application and obtain the Tier I Air Permit for this facility.

Best Regards,



Shawn Dolan, P.E.
Manager of Engineering

Certification of Truth, Accuracy and Completeness (by Responsible Official)

I certify that, based on information and belief formed after reasonable inquiry, the statements and information contained in this and any referenced document(s) are true, accurate, and complete in accordance with IDAPA 58.01.01.123-124


Responsible Official Signature

Shawn Dolan, P.E.
Print or Type Responsible Official Name

7/11/12
Date

Enclosures



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

COMPANY NAME, FACILITY NAME, AND FACILITY ID NUMBER

1. Company Name	Kootenai Electric Cooperative		
2. Facility Name	Fighting Creek Landfill, Landfill Gas To Energy Facility	3. Facility ID No.	055-00091
4. Brief Project Description - One sentence or less	Power generation from the combustion of landfill gas in two CAT gensets.		

PERMIT APPLICATION TYPE

5. Initial Tier I Tier I Administrative Amendment Tier I Minor Modification Tier I Significant Modification
 Tier I Renewal: Permit No.: _____ Date Issued: _____

FORMS INCLUDED

Include d	N/A	Forms	DEQ Verify
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Form CSTI – Cover Sheet	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Form GI – Facility Information	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Form EU0 – Emissions Units General	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Form EU1– Industrial Engine Information Please specify number of EU1s attached: <u>2</u>	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form EU2– Nonmetallic Mineral Processing Plants Please specify number of EU2s attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form EU3– Spray Paint Booth Information Please specify number of EU3s attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form EU4– Cooling Tower Information Please specify number of EU4s attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form EU5 – Boiler Information Please specify number of EU5s attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form CBP– Concrete Batch Plant Please Specify number of CBPs attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form HMAP – Hot Mix Asphalt Plant Please specify number of HMAPs attached: _____	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	PERF – Portable Equipment Relocation Form	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form BCE– Baghouses Control Equipment	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form SCE– Scrubbers Control Equipment	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form VSCE – Venturi Scrubber Control Equipment	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form ESP – Electrostatic Precipitator	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form AO – Afterburner/Oxidizer	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form CYS – Cyclone Separator	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Form CA – Carbon Adsorber	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Forms EI-CP1 - EI-CP4– Emissions Inventory– criteria pollutants (Excel workbook, all 4 worksheets)	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Form CAM – Compliance Assurance Monitoring	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Form FRA – Federal Regulation Applicability	<input type="checkbox"/>



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

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

IDENTIFICATION

1. Company Name: Kootenai Electric Cooperative		2. Facility Name: Fighting Creek Landfill, Landfill Gas To Energy Facility	
3. Brief Project Description:		Power generation from the combustion of landfill gas in two CAT gensets	

FACILITY INFORMATION

4. Primary Facility Permit Contact Person/Title	Shawn Dolan	Manager of Engineering
5. Telephone Number and Email Address	208-292-3276	sdolan@kec.com
6. Alternate Facility Contact Person/Title	Dave Kahly	Chief Engineer
7. Telephone Number and Email Address	208-292-3286	dkahly@kec.com
8. Address to Which the Permit Should be Sent	2451 W. Dakota Ave	
9. City/County/State/Zip Code	Hayden Kootenai County ID	83835
10. Equipment Location Address (if different than the mailing address above)	KEC / Fighting Creek Landfill 22089 S. Hwy 95	
11. City/County/State/Zip Code	Coeur D Alene Kootenai County ID	83814
12. Is the Equipment Portable?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
13. SIC Code(s) and NAICS Code	Primary SIC: 4911	Secondary SIC: NAICS:
14. Brief Business Description and Principal Product	Power generation from the combustion of landfill gas in two CAT gensets	
15. Identify any adjacent or contiguous facility that this company owns and/or operates	N/A	
16. Specify the reason for the application	<input type="checkbox"/> Permit to Construct (PTC) <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>For Tier I permitted facilities only: If you are applying for a PTC then you must also specify how the PTC will be incorporated into the Tier I permit.</p> <input type="checkbox"/> Incorporate the PTC at the time of the Tier I renewal <input type="checkbox"/> Co-process the Tier I modification and PTC <input type="checkbox"/> Administratively amend the Tier I permit to incorporate the PTC upon your request (IDAPA 58.01.01.209.05.a, b, or c) </div> <input checked="" type="checkbox"/> Tier I Permit <input type="checkbox"/> Tier II Permit <input type="checkbox"/> Tier II/Permit to Construct	

CERTIFICATION

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

17. Responsible Official's Name/Title	Shawn Dolan	Manager of Engineering
18. Responsible Official Address	2451 West Dakota Ave., Hayden ID 83835	
19. Responsible Official Telephone Number	208-292-3276	
20. Responsible Official Email Address	sdolan@kec.com	
21. Responsible Official's Signature		Date: 7/11/12
22. <input checked="" type="checkbox"/> Check here to indicate that you would like to review the draft permit prior to final issuance.		



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

IDENTIFICATION

1. Company Name: Kootenai Electric Cooperative	2. Facility Name: Fighting Creek Landfill, Landfill Gas To Energy Facility	3. Facility ID No: 055-00091
4. Brief Project Description: Power generation from the combustion of landfill gas in two CAT gensets		

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5. Emissions Unit (EU) Name:	ENGINE #1		
6. EU ID Number:	ENGINE #1		
7. EU Type:	<input checked="" type="checkbox"/> New Source	<input type="checkbox"/> Unpermitted Existing Source	Date Issued:
	<input type="checkbox"/> Modification to a Permitted Source -- Previous Permit #:		
8. Manufacturer:	CATERPILLAR		
9. Model:	G3520C		
10. Maximum Capacity:	1600 KW		
11. Date of Construction:	APRIL 25, 2011		
12. Date of Modification (if any):	N/A		
13. Is this a Controlled Emission Unit?	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If Yes, complete the following section. If No, go to line 22.		

EMISSIONS CONTROL EQUIPMENT

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

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

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

22. Actual Operation:	8,585 HOURS/YEAR
23. Maximum Operation:	8,760 HOURS/YEAR

REQUESTED LIMITS

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



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

IDENTIFICATION

1. Company Name: Kootenai Electric Cooperative	2. Facility Name: Fighting Creek Landfill, Landfill Gas To Energy Facility	3. Facility ID No: 055-00091
4. Brief Project Description: Power generation from the combustion of landfill gas in two CAT gensets		

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5. Emissions Unit (EU) Name:	ENGINE #2
6. EU ID Number:	ENGINE #2
7. EU Type:	<input checked="" type="checkbox"/> New Source <input type="checkbox"/> Unpermitted Existing Source <input type="checkbox"/> Modification to a Permitted Source -- Previous Permit #: Date Issued:
8. Manufacturer:	CATERPILLAR
9. Model:	G3520C
10.. Maximum Capacity:	1600 KW
11. Date of Construction:	APRIL 25, 2011
12. Date of Modification (if any):	N/A
13. Is this a Controlled Emission Unit?	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

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

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

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

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

22. Actual Operation:	8,585 HOURS/YEAR
23. Maximum Operation:	8,760 HOURS/YEAR

REQUESTED LIMITS

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

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



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

IDENTIFICATION

1. Company Name: Kootenai Electric Cooperative	2. Facility Name: Fighting Creek Landfill, Landfill Gas To Energy Facility	
3. Brief Project Description: Power generation from the combustion of landfill gas in two CAT gensets		

ENGINE (EMISSION UNIT) DESCRIPTION AND SPECIFICATIONS

4. Type of Unit: <input checked="" type="checkbox"/> New Unit <input type="checkbox"/> Unpermitted Existing Unit <input type="checkbox"/> Modification to a Unit with Permit #: _____ Date Issued: _____			
5. Engine Displacement: 86.3 L x 20 cylinders (liters per cylinder)	6. Ignition Type: <input type="checkbox"/> Compression <input checked="" type="checkbox"/> Spark		
7. Use <input type="checkbox"/> Emergency <input checked="" type="checkbox"/> Non-Emergency			
8. Engine ID Number: Engine #1	9. Maximum Rated Engine Power: _____ Brake Horsepower (bhp)		
10. Construction Date: April 25, 2011	11. Manufacturer: Caterpillar	12. Model: G3520C	13. Model Year: 2011
14. Date of Modification (if applicable): n/a	15. Serial Number (if available): GZJ00506	16. Control Device (if any): n/a	

FUEL DESCRIPTION AND SPECIFICATIONS

17. Fuel Type	<input type="checkbox"/> Diesel Fuel (#) (gal/hr)	<input type="checkbox"/> Gasoline Fuel (gal/hr)	<input type="checkbox"/> Natural Gas (cf/hr)	<input checked="" type="checkbox"/> Other Fuels (unit:scfm)
18. Full Load Consumption Rate				578
19. Actual Consumption Rate				458
20. Sulfur Content wt%		N/A	N/A	

OPERATING LIMITS & SCHEDULE

21. Imposed Operating Limits (hours/year, or gallons fuel/year, etc.): n/a
22. Operating Schedule (hours/day, months/year, etc.): 24 hours/day with an expected maximum up-time of 98% for a total of 8,585 hours/year



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

IDENTIFICATION

1. Company Name: Kootenai Electric Cooperative	2. Facility Name: Fighting Creek Landfill, Landfill Gas To Energy Facility	
3. Brief Project Description: Power generation from the combustion of landfill gas in two CAT gensets		

ENGINE (EMISSION UNIT) DESCRIPTION AND SPECIFICATIONS

4. Type of Unit: <input checked="" type="checkbox"/> New Unit <input type="checkbox"/> Unpermitted Existing Unit <input type="checkbox"/> Modification to a Unit with Permit #: _____ Date Issued: _____			
5. Engine Displacement: 86.3 L x 20 cylinders (liters per cylinder)	6. Ignition Type: <input type="checkbox"/> Compression <input checked="" type="checkbox"/> Spark		
7. Use <input type="checkbox"/> Emergency <input checked="" type="checkbox"/> Non-Emergency			
8. Engine ID Number: Engine #2	9. Maximum Rated Engine Power: _____ Brake Horsepower (bhp)		
10. Construction Date: April 25, 2011	11. Manufacturer: Caterpillar	12. Model: G3520C	13. Model Year:
14. Date of Modification (if applicable): n/a	15. Serial Number (if available): GZJ00505	16. Control Device (if any): n/a	

FUEL DESCRIPTION AND SPECIFICATIONS

17. Fuel Type	<input type="checkbox"/> Diesel Fuel (#) (gal/hr)	<input type="checkbox"/> Gasoline Fuel (gal/hr)	<input type="checkbox"/> Natural Gas (cf/hr)	<input checked="" type="checkbox"/> Other Fuels (unit:scfm)
18. Full Load Consumption Rate				578
19. Actual Consumption Rate				458
20. Sulfur Content wt%		N/A	N/A	

OPERATING LIMITS & SCHEDULE

21. Imposed Operating Limits (hours/year, or gallons fuel/year, etc.): n/a
22. Operating Schedule (hours/day, months/year, etc.): 24 hours/day with an expected maximum up-time of 98% for a total of 8,585 hours/year



Facility Wide Potential to Emit Emission Inventory Application Template and Instructions

For new stationary sources provide the facility's potential to emit for all NSR Regulated Air Pollutants. The potential to emit provided here must match the emissions rates which are requested to be permitted.

For modifications to existing facilities (including the addition of new emissions units), if the existing facility classification is in question an existing facility wide potential to emit emission inventory will be required to be submitted¹. Contact DEQ to determine if a facility wide emission inventory for the existing facility is required.

All emissions inventories must be submitted with thorough documentation. The emission inventories will be subjected to technical review. Therefore, prepare your application with sufficient documentation so that the public and DEQ can verify the validity of the emission estimates. **Applications submitted without sufficient documentation are incomplete. Follow the instructions provided on page 2; do not proceed until you have read the instructions.**

Applicants must use the Potential to Emit Summary table provided below.

Table 1. POTENTIAL TO EMIT FOR NSR REGULATED POLLUTANTS

Emissions Unit	NO _x T/yr	CO T/yr	VOC T/yr	PM ₁₀ T/yr	NSR Pollutant ^a T/yr	NSR Pollutant ^a T/yr
Point Sources						
Engine #1	12.94	77.62	3.74	3.45	0.00	0.00
Engine #2	12.94	77.62	3.74	3.45	0.00	0.00
Fugitive Sources						
<i>{For listed source categories only, see item 3 below in the instructions}</i>						
XXX	0.00	0.00	0.00	0.00	0.00	0.00
XXX	0.00	0.00	0.00	0.00	0.00	0.00
XXX	0.00	0.00	0.00	0.00	0.00	0.00
Totals	25.87	155.25	7.49	6.90	0.00	0.00

a) NSR Regulated air Pollutants are defined² as: Particulate Matter (PM, PM-10, PM-2.5), Carbon Monoxide, Lead, Nitrogen Dioxide, Ozone (VOC), Sulfur Dioxide, CO₂e³, Green House Gases (GHG) mass, all pollutants regulated by NSPS (40 CFR 60)(i.e. TRS, fluoride, sulfuric acid mist) & Class I & Class II Ozone Depleting Substances (40 CFR 82)(i.e. CFC, HCFC, Halon, etc.)

Applicants are encouraged to call DEQ's Air Quality Permit Hotline (1-877-573-7648) to ask questions as they prepare the application. **Emission Inventory Instructions:**

¹ The applicant must determine if the existing facility is a major facility. If the facility is an existing PSD major facility and changes are being made to the facility the major modification test must be conducted.

² 40 CFR 52.21(b)(50), as incorporated by reference at IDAPA 58.01.01.107.03.d

³ Multiply each green house gas (GHG) by the global warming potential (GWP) listed at 40 CFR 98, Table A- 1 of Subpart A then sum all values to determine CO₂e (GHGs are carbon dioxide, nitrous oxide, methane, hydrofluorcarbons, perfluorcarbons, sulfur hexafluoride). Be sure to show all calculations as described in the instructions.



Facility Wide Hazardous Air Pollutant Potential to Emit Application Template and Instructions

Provide the facility wide potential to emit for all Hazardous Air Pollutants (HAPs). **The potential to emit provided here must match the emissions rates which are requested to be permitted.**

HAPs are pollutants that are required to be regulated under the Clean Air Act. A list of the HAPs may be found by following this link: [HAP list](#); review the list carefully to be sure you have included all listed HAPs.

All emissions inventories must be submitted with thorough documentation. The emission inventories will be subjected to technical review; prepare your application with sufficient documentation so that either the public or DEQ can verify the validity of the emission estimates. **Applications submitted without sufficient documentation are incomplete. Follow the instructions provided on the following page; do not proceed until you have read the instructions.**

Applicants must use the Potential to Emit Summary table provided below. Identify the individual HAP with the highest emissions and total HAP emissions. The potential to emit provided here must match the emissions rates which are requested to be permitted. **All fugitive emissions of HAPs must be included.**

Table A HAP POTENTIAL TO EMIT EMISSIONS SUMMARY

* Maximum Individual HAP

See attached Table A

Applicants are encouraged to call DEQ's Air Quality Permit Hotline (1-877-573-7648) to ask questions as they prepare the application.

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

CAS	COMPOUNDS ¹	Molecular Weight	Concentration of Compounds Found in LFG ⁹	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
		g/mol										
Toxic air Contaminants (TACs)												
71-55-6	1,1,1-Trichloroethane (methyl chloroform)	133.42	1.68E-01	8.37E-03	93.0%	1.34E-04	3.21E-03	1.17E+00	2.34E+00	1.27E+02	2.67E-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	3.83E+00	7.66E+00	2.50E-04	8.75E-04	Yes
75-35-4	1,1-Dichloroethene (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 (ethylene 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	2.30E-02	9.70E-04	93.0%	1.59E-05	3.72E-04	1.36E-01	2.72E-01	2.31E+01	3.10E-05	No
107-13-1	Acrylonitrile	53.06	3.60E-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	2.83E-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	6.93E-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	2.67E+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	5.76E-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	1.61E+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-01	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	8.75E-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
78-93-3	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 IC Engines
Kootenia Electric, Fighting Creek Landfill, Cour d' Alene, ID**

Criteria Air Pollutants

Molecular Weight	Max Concentration of Compounds Found in LFG	Emission Factor	Emission Factor	Potential To Emit Emissions Single IC Engine			Potential To Emit Emissions Two IC Engines		
				lb/MM dscf of methane	lbs/hr	lbs/day	tons/yr	lbs/hr	lbs/day
g/mol	ppmv	g/bhp-hr		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		48.000	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

Nitrogen Oxides (NO_x)
Carbon Monoxide (CO)
Sulfur Dioxide (SO₂)⁵
Volatile Organic Compounds (VOC)^{6,7}
Particulate Matter (PM₁₀)⁸

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

Variables:

MODEL INPUT VARIABLES:		POTENTIAL TO EMIT	
Methane Concentration		50.0%	
Genset horsepower		2233	hp
Fuel Value		504	Btu/cf
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
PM	48 lb/MM dscf of methane	AP-42

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 88.1% 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 NMOC 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 9% oxygen and 898 F)
- ⁸ PM₁₀ Value based on AP-42 (48 lb/MM dscf 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.



Please see instructions on pages 3-8 before filling out the form.

IDENTIFICATION			
1. Company Name:	Kootenai Electric Cooperative	2. Facility Name:	Fighting Creek Landfill Gas To Energy Facility
3. Facility ID	No.: 055-00091		
4. Brief Project Description:	Power generation from the combustion of landfill gas in two CAT gensets		

MONITORING APPROACH SUBMITTAL

Background		
5. Emissions Unit	Description (type of emission point): CAT G3520C genset	Identification (emission point number): Engine #1
6. Applicable Regulation, Limits, and Monitoring Requirements	Applicable regulation citation: NSPS 40 CFR 60, Subpart JJJJ	Pollutant: NOx Emission limit: 2.0 g/hp-hr
	40 CFR 60.4233(e)	Pollutant: CO Emission limit: 5.0 g/hp-hr
		Pollutant: VOC Emission limit: 1.0 g/hp-hr
	Monitoring requirements: Odor complaints, notifications submitted, and maintenance records.	
7. Control Technology	Brief description: Operating gensets within operating parameters identified during air emissions source test	

Table 1. Monitoring Approach			
	Indicator No. 1	Indicator No. 2	Indicator No. 3
I. Indicator Description	Cylinder temperature	Engine timing	Gas quality
Measurement Approach	Thermocouple	ECM	Gas monitor
II. Indicator Range (Quality improvement plan threshold optional)	1050-1200°F	17-28° Before TDC	400-550 BTU/cuft
III. Performance Criteria	_____	_____	_____
A. Data Representativeness	Thermocouples are located in the outlet of each of the genset's cylinders to monitor combustion temperature. Thermocouple condition and accuracy are monitored by the genset's engine control module (ECM).	ECM monitors and controls engine timing	Gas samples are continuously monitored by a infrared gas analyzer located on the landfill gas compression skid. Gas analyzer has an error of less than 1% of the measured value.
B. Verification of Operational Status	Thermocouple condition and accuracy are monitored by the genset's engine control module (ECM). In addition, daily operator inspection of genset condition is utilized to ensure proper functioning of genset equipment.	Genset controls, including the ECM, were commissioned by a factory trained technician. The ECM runs internal diagnostics to ensure proper operation. In addition, daily operator inspection of genset condition is utilized to ensure proper functioning of genset equipment.	The gas analyzer automatically recalibrates its sensors to air on a daily basis. This adjusts for sensor drift between calibration with a known gas. Calibration of the analyzer with a known gas sample is performed twice monthly
C. QA/QC Practices and Criteria	1. Visual inspection of thermocouple sensor (yearly) 2. Monitoring of ECM for proper operation (yearly)	1. Monitoring of ECM for proper operation (yearly)	1. Visual inspection of analyzer to ensure all components are in working order (weekly). 2. Analyzer is calibrated with a known gas sample twice per month to ensure accurate readings.

			2.
D. Monitoring Frequency	Continuous	Daily	Continuous
Data Collection Procedures	Computer based data acquisition	Operator logs	Computer based data acquisition
Averaging Period	Daily. Operator can average data over a 24 hour period.	Daily	Daily. Operator can average data over a 24 hour period.

Justification	<p>Present justification for selection of monitoring approach(es) and indicator range(s):</p> <p>Justification for Indicator 1: Cylinder temperature has a direct affect on the emission levels of the target pollutants.</p> <p>Justification for Indicator 2: Engine timing directly affects cylinder temperature and fuel consumption. The ECM continuously monitors cyinder temperature and gas quality, and adjusts the engine accordinly to maintain optimum engine performance.</p> <p>Justification for Indicator 3: The engine's ECM will automatically compensate for gas quality within the range of 400-550 BTU/cuft. If the gas quality goes out of this range, the genset will automatically shutdown.</p>
---------------	--



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

AIR PERMIT APPLICATION

Revision 6
 10/7/09

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

IDENTIFICATION	
1. Company Name: Kootenai Electric Cooperative	2. Facility Name: Fighting Creek Landfill, Landfill Gas To Energy Facility
3. Brief Project Description: Power generation from the combustion of landfill gas in two CAT gensets.	
APPLICABILITY DETERMINATION	
4. List applicable subparts of the New Source Performance Standards (NSPS) (40 CFR part 60). Examples of NSPS affected emissions units include internal combustion engines, boilers, turbines, etc. The applicant must thoroughly review the list of affected emissions units.	List of applicable subpart(s): JJJJ <input type="checkbox"/> Not Applicable
5. List applicable subpart(s) of the National Emission Standards for Hazardous Air Pollutants (NESHAP) found in 40 CFR part 61 and 40 CFR part 63 . Examples of affected emission units include solvent cleaning operations, industrial cooling towers, paint stripping and miscellaneous surface coating. EPA has a web page dedicated to NESHAP that should be useful to applicants.	List of applicable subpart(s): <input checked="" type="checkbox"/> Not Applicable
6. For each subpart identified above, conduct a complete a regulatory analysis using the instructions and referencing the example provided on the following pages. Note - Regulatory reviews must be submitted with sufficient detail so that DEQ can verify applicability and document in legal terms why the regulation applies. Regulatory reviews that are submitted with insufficient detail will be determined incomplete.	<input type="checkbox"/> A detailed regulatory review is provided (Follow instructions and example). <input checked="" type="checkbox"/> DEQ has already been provided a detailed regulatory review. Give a reference to the document including the date.
IF YOU ARE UNSURE HOW TO ANSWER ANY OF THESE QUESTIONS, CALL THE AIR PERMIT HOTLINE AT 1-877-5PERMIT	
<p><i>It is emphasized that it is the applicant's responsibility to satisfy that DEQ will help the applicant understand what those requirements are submitted but that DEQ will not perform the required technical work.</i></p>	

Regulatory review was provided to the following in a letter dated October 15, 2010 from Eric M. Sonsthagen of SCS Engineers.

Mr. Bill Rogers
 Department of Environmental Quality
 Air Quality Division
 Stationary Source Program
 1410 North Hilton
 Boise, Idaho 83706-1255