

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

IN THE MATTER OF APPROVING A)
NEW CONTAMINANT SOURCE FOR) **ORDER No. 08AQ-C080**
THE PUBLIC UTILITY DISTRICT NO. 1) **First Revision**
OF KLICKITAT COUNTY)

To: **The Public Utility District No. 1 of Klickitat County**
1313 South Columbus Avenue
Goldendale, Washington 98620

1.0 PROJECT SUMMARY

The Public Utility District No.1 of Klickitat County (~~herein referred to as~~ “Klickitat PUD”), currently operates the H.W. Hill Landfill Gas Power Plant located within the boundaries of Roosevelt Regional Landfill within the East ½ of Section 27, Township 4 North, Range 21 East, W. M., approximately 5 miles north of Roosevelt, Klickitat County, Washington. The existing power plant consists of five internal combustion engines using landfill gas from Roosevelt Regional Landfill as fuel to generate up to 10.5 megawatts (MW) of electrical power.

On October 8, 2008, the Department of Ecology (“Ecology”) issued Order No. 08AQ-080 to Klickitat PUD approving the following project: In the current proposal, Klickitat PUD is proposing the following:

- ~~To e~~Construction and operation of two new 10.1-MW landfill gas-fired combustion turbines that will generate a rated 20.2 MW of electrical power. At maximum production, each turbine will exhaust to a new unfired heat recovery steam generator (HRSG) to generate an additional estimated 8 MW of electrical power, including an estimated 4 MW of electrical power per heat recovery steam generator. All landfill gas to be combusted will be drawn from Roosevelt Regional Landfill.
- ~~To e~~Construction and operation of a new landfill gas treatment system that will remove impurities such as sulfur compounds, siloxanes, and miscellaneous organic compounds, from the landfill gas to be used in the combustion turbines.
- ~~To e~~Construction and operation of a small open, candle type, flare to combust up to 7,875 standard cubic feet of landfill gas per hour during periods when the landfill gas treatment system is undergoing maintenance. The small flare ~~will~~

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would combust landfill gas vented during carbon and iron sponge regeneration activities, and carbon changes.

4. ~~To i~~Installation and operation of a 288-brake horsepower (bhp) diesel-fueled emergency fire pump. The fire pump ~~would~~will be operated up to 100 hours per year for maintenance purposes, and as needed in the case of a fire emergency.

On June 25, October 20, and November 19, 2009, Klickitat PUD submitted requests to Ecology to revise Order No. 08AQ-C080 to:

1. Remove conditions pertaining to the emergency diesel-fueled fire pump. Klickitat PUD stated that the fire pump, which was previously approved by Order No. 08AQ-C080, will no longer be installed at the site. Klickitat PUD instead proposes to install a smaller diesel-fueled fire pump, which is not required to undergo air emissions new source review under Washington State air quality regulations.
2. Approve installation and operation of an enclosed landfill gas flare in place of an open candle-type flare which had been approved by Order No. 08AQ-C080. The proposed enclosed flare will process more landfill gas and operate for more hours than the previously approved open flare. The enclosed flare will operate continuously for 24 hours per day and is capable of combusting up to 12,000 cubic feet of landfill gas per hour.
3. Update Order No. 08AQ-C080 to be consistent with recent changes to the air toxics regulation.

The Department of Ecology ~~APPROVES~~ PROPOSES TO APPROVE Klickitat PUD's proposal by issuing this ORDER. The project location is within the West ½ of the Northeast ¼ of Section 27, Township 4 North, Range 21 East Willamette Meridian, approximately 5 miles north of Roosevelt, Klickitat County, Washington.

In relation to the above, the Department of Ecology, State of Washington, pursuant to Revised Code of Washington (RCW) 70.94.152, makes the following determinations:

- 1.1 The proposed source qualifies as a new source of air contaminants under Washington Administrative Code (WAC) 173-400-110, and a new source of toxic air pollutants under WAC 173-460-040.
- 1.2 The proposed source is not a new major stationary source or major modification to a major stationary source that is subject to the Prevention of Significant Deterioration permitting requirements of WAC 173-400-700 through 750.

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- 1.3 The proposed source will be located in an area which is in attainment or unclassifiable for all criteria pollutants.
- 1.4 The proposed source, if constructed and operated as herein required, will not delay the attainment date for an area not in attainment, or cause or contribute to a violation of any ambient air quality standard. Air quality impacts from the proposed source were evaluated using AERMOD, a refined air dispersion model recommended by the United States Environmental Protection Agency (EPA). All potential criteria and toxic air pollutant emissions comply with the ambient air quality standards and the requirements of Chapter 173-460 WAC, Controls for New Sources of Toxic Air Pollutants, respectively.
- 1.5 The proposed source, if constructed and operated as herein required, will be in accordance with applicable rules and regulations, as set forth in Chapter 173-400 WAC and Chapter 173-460 WAC, and the operation thereof, at the location proposed, will comply with all applicable new source performance standards, national emission standards for hazardous air pollutants, national emission standards for hazardous air pollutants for source categories, and emission standards adopted under Chapter 70.94 RCW.
- 1.6 The proposed source, if constructed and operated as herein required, will employ Best Available Control Technology (BACT) to control emission of criteria pollutants, and Best Available Control Technology for toxics (~~T~~-BACT) to control emission of toxic air pollutants.
- 1.7 The project has satisfied the environmental review requirements of the State Environmental Policy Act (SEPA). A *Mitigated Determination of Nonsignificance* (MDNS) was issued by Klickitat County Planning Department, acting as lead agency, on July 12, 2008.

1.7.1.8 Upon final approval, Order No. 08AQ-C080, First Revision, will supersede Order No. 08AQ-C080. The provisions of Order No. 08AQ-C080 will no longer be in effect.

THEREFORE, IT IS ORDERED that the project as described in ~~said the~~ Notice of Construction application submitted by Klickitat PUD, and more specifically detailed in plans, specifications and other information submitted to the Department of Ecology in reference thereto, is approved for construction, installation and operation, provided the following conditions are met:

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2.0 APPROVAL CONDITIONS

2.1 LAWS AND REGULATIONS

2.1.1 The proposed source qualifies as a new source of air contaminants under WAC 173-400-110, September 6, 2007, and WAC 173-460-040, July 21, 1998.

2.1.2 The proposed source shall comply with all current state laws and regulations, including:

- Chapter 70.94 RCW, Washington Clean Air Act;
- Chapter 173-400 WAC, General Regulations for Air Pollution Sources;
- Chapter 173-460 WAC, Controls for New Sources of Toxic Air Pollutants.

2.1.3 The project shall comply with all applicable federal laws and regulations, including Title 40, Code of Federal Regulations (40 CFR) part 60, subpart KKKK, Standards of Performance for Stationary Combustion Turbines, July 6, 2006.

- ~~Title 40, Code of Federal Regulations (40 CFR) part 60, subpart KKKK, Standards of Performance for Stationary Combustion Turbines, July 6, 2006;~~
- ~~40 CFR part 60, subpart III, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines, July 11, 2006.~~

2.2 ESTIMATED-ANNUAL EMISSIONS

The proposed project shall not exceed the following annual emissions, including startup and shut-down emissions:

Pollutant	Emissions	
Nitrogen Oxides (NOx)	249.0	tons per year
Nitric Oxide (NO)	162.4	tons per year
Carbon Monoxide (CO)	136.9 137.8	tons per year
Volatile Organic Compounds (VOCs)	125.9 131.9	tons per year
Particulate Matter (PM _{2.5}) ¹	47.4 48.1	tons per year
Particulate Matter (PM ₁₀) ²	39.2 39.7	tons per year
Sulfur Dioxide (SO ₂)	13.1 13.4	tons per year
Acetone	2.2	pounds per year
Acrylonitrile	18.3 18.8	pounds per year
Benzene	1511.8 1513.0	pounds per year
Benzyl Chloride	18.3	pounds per year
Bromodichloromethane	2.8	pounds per year
Butane	0.003	pounds per year

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Pollutant	Emissions	
Carbon Disulfide	0.00040.06	pounds per year
Carbon Tetrachloride	2.7	pounds per year
Carbonyl Sulfide	0.0003	pounds per year
Chlorobenzene	0.0010.16	pounds per year
Chlorodifluoromethane	3469.93470.5	pounds per year
Chloroethane	0.0030.44	pounds per year
Chloroform	10.4	pounds per year
Chloromethane (Methyl Chloride)	2.12.5	pounds per year
Cyclohexane	191.8	pounds per year
Dichlorobenzene	0.0010.17	pounds per year
Dichlorodifluoromethane (Freon 12)	922.5	pounds per year
Dichlorofluoromethane	0.01	pounds per year
1,1-Dichloroethane	0.0091.27	pounds per year
1,1-Dichloroethene	0.0010.11	pounds per year
1,2-Dichloroethane	0.0020.22	pounds per year
Dichloromethane	0.056.6	pounds per year
1,2-Dichloropropane	0.0010.12	pounds per year
Ethanol	0.01	pounds per year
Ethyl Mercaptan	0.001	pounds per year
Ethylbenzene	3.03.7	pounds per year
Ethylene Dibromide	0.0000080.002	pounds per year
Fluorotrichloromethane	0.004	pounds per year
Formaldehyde	687.2	pounds per year
Heptane	382.2	pounds per year
Hexane	0.0060.77	pounds per year
Hydrogen Sulfide	270.3272.0	pounds per year
Isopropyl Alcohol	0.034.1	pounds per year
Mercury (Total)	0.00000080.0001	pounds per year
Methyl Ethyl Ketone	2.22.9	pounds per year
Methyl Isobutyl Ketone	0.10.36	pounds per year
Methyl Mercaptan	0.001	pounds per year
Pentane	0.002	pounds per year
Styrene	0.2	pounds per year
1,1,2,2-Tetrachloroethane	0.0071.0	pounds per year
Tetrachloroethene (Perchloroethylene)	0.33.1	pounds per year
Tetrahydrofuran	889.5	pounds per year
Toluene	3.123.8	pounds per year
1,1,1-Trichloroethane (Methyl Chloroform)	42.843.2	pounds per year
Trichloroethylene	0.022.0	pounds per year
Vinyl Acetate	0.1	pounds per year

Pollutant	Emissions
Vinyl Chloride	0.32.8 pounds per year
Xylenes	17.118.9 pounds per year

¹Total PM_{2.5} emissions include estimated contributions from the conversion of SO₂ and NO_x to sulfate and nitrate particles, respectively. Conversion rates of 1% and 3% per hour for SO₂ and NO_x, respectively, over a one-hour travel time, are assumed. ²Total PM₁₀ emissions represent primary emissions only.

2.3 BACT

As required by WAC 173-400-113(2), this project shall use Best Available Control Technology (BACT) to control emission of particulate matter, sulfur dioxide, nitrogen oxides, carbon monoxide and volatile organic compounds. The following control technologies and limitations are determined to be BACT for the specified regulated air pollutants and emission units:

2.3.1 Combustion Turbines

2.3.1.1 Nitrogen Oxides (NO_x) – Turbine design, good combustion practices, with supplemental use of water injection. NO_x emissions from each combustion turbine exhaust shall not exceed the limits in Conditions 2.3.1.1.1, 2.3.1.1.2 and 2.3.1.1.3 below, except during periods of startup and shutdown.

2.3.1.1.1 NO_x emissions from each turbine shall not exceed sixty (60) parts per million by volume on a dry basis (ppmvd), at 15% oxygen, 3-hour average, when the methane content in the landfill gas fuel, averaged over the previous three (3) hours, is 50% methane by volume, or less.

2.3.1.1.2 NO_x emissions from each turbine shall not exceed a linear progression from 60 to 74 ppmvd at 15% oxygen, 3-hour average, for methane content in the landfill gas fuel, averaged over the previous 3 hours, varying between 50% and 55% methane by volume.

2.3.1.1.3 NO_x emissions from each combustion turbine shall not exceed 74 ppmvd at 15% oxygen, 3-hour average, when the methane content in the landfill gas fuel, averaged over the previous 3 hours, is higher than 55% methane by volume.

2.3.1.1.4 Ecology may evaluate operating data from this project after it is constructed to determine whether or not lower NO_x emission limits are achievable using the employed technology. If lower NO_x limits are found to be achievable,

based on actual operation of the equipment as installed and permitted, Ecology may amend this Order to incorporate the lower emission limits.

- 2.3.1.2 Carbon Monoxide (CO) – Turbine design and good combustion practices to keep total CO emissions in each turbine at or below 60 ppmvd at 15% oxygen, 1-hour average, except during periods of startup and shutdown.
- 2.3.1.3 Sulfur Dioxide (SO₂) – Fuel cleaning to reduce sulfur compounds in the fuel to below 20 ppm by weight (ppmw) of sulfur, as hydrogen sulfide. Total SO₂ emissions from any combustion turbine shall not exceed 0.014 lb SO₂ per million British thermal units (lb/MMBtu) heat input. No fuel other than pre-cleaned landfill gas shall be burned in the combustion turbines. Cleaning of landfill gas shall be achieved by maintaining a landfill gas cleaning system designed to lower concentrations of organic compounds, sulfur compounds, and other impurities, from the landfill gas to be burned. No landfill gas shall be combusted in the heat recovery systems.
- 2.3.1.4 Particulate Matter – Turbine design, good combustion practices, and fuel cleaning to keep total particulate emissions in each turbine at or below 0.0419 pounds of total particulate, as PM₁₀, per million British thermal units (lb/MMBtu) heat input.
- 2.3.1.5 Volatile Organic Compounds (VOC) – Turbine design and good combustion practices to keep total VOC emissions in each turbine at or below 0.135 lb VOC/MMBtu heat input. Control efficiency of VOC entering the turbines shall be at least 90.0 weight percent, or the outlet concentration of VOC shall be reduced to less than 20 ppmvd, as hexane, at 3 percent oxygen.

2.3.2 Enclosed Flare

- 2.3.2.1 Nitrogen Oxides (NO_x) – Flare design and proper operation and maintenance of the flare to keep NO_x emissions from the flare at or below 0.053 lb/MMBtu heat input.**
- 2.3.2.2 Carbon Monoxide (CO) – Flare design and proper operation and maintenance of the flare to keep NO_x emissions from the flare at or below 0.033 lb/MMBtu heat input.**

2.3.2.3 Sulfur Dioxide (SO₂) – Limiting SO₂ emissions from the flare at or below 0.015 lb/MMBtu heat input.

2.3.2.4 Particulate Matter – Pre-cleaning or filtering of landfill gas, and proper operation and maintenance of the flare to keep PM10 emissions from the flare at or below 0.020 lb/MMBtu heat input.

2.3.2.5 Volatile Organic Compounds (VOC) – The use of a standard enclosed flare, which is operated at a temperature not lower than 1600 degrees Fahrenheit with a retention time of at least 0.6 seconds. Destruction efficiency of non-methane organic compounds (NMOC) entering the flare shall be at least 98.0 weight percent, or the outlet concentration of NMOC shall be reduced to 0.227 lb/MMBtu heat input or less.

~~2.3.2 Diesel-fueled Fire Pump~~

~~2.3.2.1 The use of EPA on-road specification No. 2 distillate fuel oil, with a sulfur content of 0.0015 weight percent or less.~~

~~2.3.2.2 The use of an engine certified to EPA Tier 3 (40 CFR part 89) emission standards for NO_x, CO, Non-methane Hydrocarbons, and Particulate Matter.~~

~~2.3.2.3 Limiting use of the engine to on-site fire emergency situations and required testing and maintenance checks.~~

2.4 ~~F~~tBACT

As required by WAC 173-460-040(4)(b), this project shall use Best Available Control Technology for Toxics (~~F~~tBACT) to control emission of toxic air pollutants. The following control technologies are determined to satisfy the ~~F~~tBACT requirement:

2.4.1 The use of a properly operated and maintained landfill gas cleaning system designed to lower concentrations of organic compounds, sulfur compounds, and other impurities, from the landfill gas to be burned. No landfill gas shall be combusted in the heat recovery systems.

2.4.2 The use of a properly maintained and operated ~~maintenance-standard enclosed~~ flare to combust landfill gas which is vented during periods when the landfill gas treatment system is ~~undergoing maintenance~~operating.

2.4.3 Compliance with BACT conditions in section 2.3 above.

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2.5 PRODUCTION AND EQUIPMENT RESTRICTIONS

2.5.1 The facility shall be limited to the construction and operation of the following emission units:

Emission Unit	Quantity	Estimated* Maximum Input	Estimated* Output
Combustion Turbines	2	216 MMBtu/hr	20.2 MWe
Heat Recovery Systems	2	Not Applicable	8 MWe
Emergency Fire Pump	1	1.97 MMBtu/hr (14.5 gallons/hr of diesel fuel)	215 kW
Open-Enclosed Flare	1	3.946.0 MMBtu/hr	Not Applicable

*Production estimates are based on site average conditions of 55 °F, 1550 feet elevation, and 60% relative humidity. Production output is not limited to the specified output values, provided that no emission limit contained in this Order is exceeded.

2.5.2 This project is limited to two landfill gas-fired combustion turbines each burning 3,630 cubic feet per minute (cfm), or less, of landfill gas at site average conditions of 55 °F, and 496 Btu/cf landfill gas containing 54.4% methane content. Landfill gas usage may increase to 4,078 cfm per turbine in cold weather periods (at -10 °F or lower).

2.5.3 This project is limited to one standard enclosed flare operated at a maximum flow rate of 12,000 standard cubic feet (scf) of landfill gas per hour and a maximum heat input rate of 6.0 MMBtu/hr.

2.5.4 An interlock or some other failsafe device shall prevent landfill gas from entering the flare if the temperature in the combustion chamber is measured at less than 1600 degrees Fahrenheit, except during the first 15 minutes following startup of the flare.

~~2.5.22.5.5~~ 2.5.5 The flare shall be equipped with a landfill gas supply shut-off safety system, which in the event of emergency, automatically isolates the flare from the landfill gas supply line, shuts off the blower, and triggers a failure alarm to notify a responsible party of the shutdown. The safety system shall be tested monthly to ensure it is working properly and the results recorded. Tests may be conducted electronically, without an actual flare shutdown.

~~2.5.32.5.6~~ 2.5.6 Installation of more emission units than specified herein, landfill gas processing rates greater than the specified rates, or any modifications to the

specified emission units that increase emissions of any regulated air pollutant, may require approval by Ecology of separate Notice of Construction applications.

~~2.5.4 The approved fire pump engine must be a certified National Fire Protection Association (NFPA) fire pump engine and shall be certified by the manufacturer to 40 CFR part 89 Tier 3 emission standards. Replacement of the engine with an engine with different emission rates may require a Notice of Construction application. Replacement of failed engines with identical engines (same manufacturer and model family) requires notification of Ecology prior to installation.~~

~~2.5.5 The fire pump engine shall be equipped with a properly installed and maintained non-resettable hour meter to track the number of hours operated during any type of operation.~~

~~2.5.6~~2.5.7 The exhaust stacks for the combustion turbines shall each extend at least 55.0 feet (16.8 meters) above plant grade. Internal stack dimensions and operating parameters shall be in accordance with plans and specifications submitted to Ecology as part of the Notice of Construction application.

~~2.5.7~~2.5.8 The release height for the ~~maintenance-enclosed~~ flare shall be at least ~~35.7~~30 feet (~~10.99~~1 meters) above plant grade. Internal stack dimensions and operating parameters shall be in accordance with plans and specifications submitted to Ecology as part of the Notice of Construction application.

~~2.5.8~~2.5.9 Any modification to the proposed source that increases emissions of any regulated air pollutant above the Prevention of Significant Deterioration (PSD) significant emission rates, as defined at 40 CFR 52.21(b)(23), will require a Prevention of Significant Deterioration (PSD) air quality permit, prior to beginning construction.

2.6 SPECIFIC EMISSION LIMITS

2.6.1 Total NO_x emissions from the project, including emissions during startup and shutdown of the turbines shall not exceed 249.0 tons per year, rolled monthly.

2.6.2 Total CO emissions from the project, including emissions during startup and shutdown of the turbines shall not exceed ~~136.9~~137.8 tons per year, rolled monthly.

2.6.3 In addition to the emission rates in sections 2.2, 2.3, and in this section, the following emission rates shall not be exceeded at any turbine exhaust, except during periods of startup and shutdown:

Pollutant	Shall not exceed	
Visible emissions	10	percent opacity
Particulate Matter (PM ₁₀)	4.5	pounds per hour
Nitrogen Oxides (NO _x)	41.9	pounds per hour
Carbon Monoxide (CO)	15.6	pounds per hour
Sulfur Dioxide (SO ₂)	1.5	pounds per hour
Volatile Organic Compounds (VOC)	14.6	pounds per hour

2.6.4 Visible emissions from the project shall not exceed zero (0) percent opacity at the property boundary.

2.7 OPERATION AND MAINTENANCE REQUIREMENTS

2.7.1 Klickitat PUD shall follow all recommended installation, configuration, operation, and maintenance provisions supplied by the permitted units’ manufacturers. All equipment shall be properly maintained and kept in good operating condition at all times.

2.7.2 The source will be operated and maintained in accordance with a site-specific operation and maintenance (O&M) manual, to be prepared by the permittee. O&M manual development shall be completed prior to operation of this source. The O&M manual shall be updated to reflect any modifications to the source or operating procedures. Failure to follow the requirements of the O&M manual, or the adequacy of the O&M manual, may be considered proof that the permitted equipment was not properly operated and maintained. The manual shall reflect standard operating procedures to be followed by all equipment operators. At a minimum, the O&M manual shall include:

2.7.2.1 Normal operating parameters for the emission units;

2.7.2.2 A maintenance schedule for the emission units;

2.7.2.3 Monitoring and record keeping requirements, including but not limited to a record of all scheduled testing and maintenance activities performed on the ~~maintenance flare~~enclosed flare that result in the emission of raw landfill gas to the atmosphere;

2.7.2.4 A description of the monitoring procedures; and

2.7.2.5 Actions for abnormal control system operation, including but not limited to requirements for reporting to Ecology any breakdown or malfunction which results in the emission of raw landfill gas and for undertaking immediate remedial measures to correct the problem and prevent further emissions into the atmosphere.

2.7.3 In accordance with WAC 173-400-101, the permittee shall review and update the O&M manual at least annually. O&M records shall be available for inspection by Ecology, organized in a readily accessible manner, and retained for at least five (5) years.

2.7.4 Each combustion turbine shall operate at a load no less than the minimum load demonstrated by prior Ecology-approved source tests to meet all of the conditions of this Order.

~~2.7.5 Operation of the maintenance flare shall be limited to combustion of landfill gas vented during periods when the landfill gas treatment system is undergoing maintenance. While in operation, the maintenance flare shall combust no more than 7,875 standard cubic feet (scf) of landfill gas per hour and 754,000 scf in any consecutive 12-month period, averaged monthly. Total annual operation of the maintenance flare shall be limited to 273 hours during any consecutive 12-month period.~~

~~2.7.6 Operation of the fire pump engine shall be limited to on-site fire emergency situations and required testing and maintenance checks. The fire pump shall be operated no more than 100 hours per year (12 consecutive months) for maintenance and testing purposes, and as needed in the case of a fire emergency.~~

2.8 TESTING REQUIREMENTS

2.8.1 Within 60 days after achieving the maximum production rate at which the source will be operated, but not later than 180 days after the initial startup of each turbine, Klickitat PUD shall conduct initial performance testing, to demonstrate compliance with all applicable emission limits identified in this Order.

2.8.2 In accordance with 40 CFR 60.4400 and 40 CFR 60.4410, subsequent performance testing for NO_x and SO₂ from each turbine shall be conducted annually. The ambient temperature must be greater than 0°F during each performance test.

2.8.3 Source testing shall be conducted annually for each pollutant not meeting its respective emission limit(s) in Condition 2.6.3, during any of the previous three source tests, and every five years for each other pollutant(s) in Condition 2.8.5.

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2.8.4 The term “annually”, as used in Conditions 2.8.2 and 2.8.3, shall mean no more than 12 calendar months following the previous performance test.

2.8.5 The combustion turbines shall be tested for the following pollutants, using the specified methods:

Pollutant	Test Method
Oxides of Nitrogen (NO _x)	EPA Method 7E, or Method 20, 40 CFR part 60, Appendix A.
Particulate Matter (PM ₁₀)	EPA Methods 1 through 5, 40 CFR part 60, Appendix A, and Method 202, 40 CFR part 51, Appendix M.
Carbon Monoxide (CO)	EPA Method 10, 40 CFR part 60, Appendix A.
Sulfur Dioxide (SO ₂)	EPA Method 6C, 40 CFR part 60, Appendix A.
Volatile Organic Compounds (VOC)	EPA Methods 25A or 18, 40 CFR part 60, Appendix A.
Visible Emissions	EPA Method 9, 40 CFR part 60, Appendix A.

2.8.6 Alternate test methods may be proposed by the permittee in writing and approved by Ecology in advance of testing.

2.8.7 Performance testing of the turbines shall be conducted at any load condition within plus or minus 25 percent of 100 percent of peak load. The permittee may perform testing at the highest achievable load point, if at least 75 percent of peak load cannot be achieved in practice.

2.8.8 All performance testing shall be performed by an independent testing firm. Each performance test shall consist of three separate runs. The minimum length of each run is 20 minutes.

2.8.9 A test plan, including a description of the methods proposed, shall be submitted for Ecology's approval at least 30 days prior to any performance testing. A written report shall be submitted to Ecology within 30 days after performance testing is conducted.

2.8.10 Sampling ports and platforms for performance testing must be provided by Klickitat PUD. The test ports must meet the requirements of Method 1, 40 CFR, part 60, Appendix A. Adequate permanent and safe access to the test ports must be provided.

~~2.8.11 At the conclusion of the fire pump engine manufacturer's warranty term (3,000 hours of operation or 60 months of use, whichever occurs first), the permittee shall pursue one of the following options:~~

~~2.8.11.1 Emission testing of the engine for NO_x, CO, non-methane hydrocarbons (NMHC), and particulate matter to determine continuing compliance with 40 CFR part 89 Tier 3 emission standards. Testing shall be conducted in accordance with 40 CFR part 89, subpart E, "Exhaust Emission Test Procedures". Testing shall be repeated every 60 months thereafter; or~~

~~2.8.11.2 Re-evaluate BACT, T-BACT, and health risks of the project's operations; or~~

~~2.8.11.3 Satisfy the engine manufacturer's requirements to renew or extend the emissions control equipment warranty; or~~

~~2.8.11.4 Any combination of the above three options.~~

~~2.8.12~~2.8.11 The requirements for performance testing contained in this section are in addition to any source testing required pursuant to other sections of this approval and in addition to any source testing required pursuant to WAC 173-400-105, and applicable federal rules.

2.9 MONITORING REQUIREMENTS

2.9.1 The flow rate, heat content (Btu), and methane content (expressed as percent by volume methane) of landfill gas fed to the combustion turbines shall be monitored by flow indicators, appropriate heat content and methane content monitors, and recorders, which must operate continuously. Continuously shall mean at least 95 percent of the monthly flare operation, except for periods of monitoring system down-time, provided the permittee demonstrates that the down-time was not a result of inadequate design, operation, or maintenance, or any other reasonably preventable condition, and any necessary repairs to the monitoring system(s) were conducted in a timely manner.

2.9.2 The landfill gas flow rate and heat input (Btu) to the maintenance-enclosed flare shall be monitored and recorded at least quarterly, while the flare is in operation.

2.9.3 The permittee shall install, calibrate, maintain, and operate Continuous Emission Monitoring Systems (CEMS) for NO_x and O₂, with an automated data acquisition and handling system that complies with 40 CFR part 60, Appendix B,

Performance Specifications, and 40 CFR part 60, Appendix F, Quality Assurance Procedures.

2.9.4 CO shall be monitored with a portable CO analyzer or a CO Continuous Emission Monitoring System, according to a Quality Assurance / Quality Control (QA/QC) plan, approved in writing by Ecology.

2.9.5 Klickitat PUD shall monitor sulfur content of the fuel being fired in the turbines. This requirement may be satisfied by:

2.9.5.1 Daily monitoring of sulfur content with an on-site total sulfur analyzer; or

2.9.5.2 Periodic on-site gas sampling and use of daily total sulfur analyzers monitoring each potential gas source.

2.9.6 On-line monitors shall be referenced in the Operations and Maintenance manual.

2.9.7 The flare shall be equipped with a temperature indicator and recorder which measures and records the gas temperature in the flare stack. This temperature indicator and recorder must operate continuously (as defined in Condition 2.9.1). The temperature indicator shall be located above the flame zone, at least three (3) feet below the top of the flare shroud and at least 0.6 seconds downstream of the burner.

~~2.9.6~~

2.10 RECORDKEEPING AND REPORTING REQUIREMENTS

2.10.1 The permittee shall keep records of complaints received from the public, Ecology, or any other entity. Any complaints shall be promptly assessed and addressed. A record shall be maintained of the permittee's action to investigate the validity of the complaint and what, if any, corrective action was taken in response to the complaint. Ecology shall be notified within three (3) days of receipt of any complaint.

2.10.2 A daily log shall be kept of the hours of operation of the turbines in base load, peak load, and startup and shutdown, and the average ambient temperature during that mode of operation.

2.10.3 A log shall be kept of operating hours, ~~and~~ gas flow rate and heat input for the maintenance-enclosed flare.

~~2.10.4~~ ~~A log of the monthly operating hours for the diesel fire pump shall be maintained. The log shall identify the reason for operation, hours of operation, fuel type, fuel consumption, and fuel sulfur content.~~

~~2.10.52.10.4~~ Records shall be kept of all periods of downtime of the monitors specified in section 2.9.

~~2.10.62.10.5~~ The permittee shall keep records of all emission testing conducted on the permitted emission units.

~~2.10.72.10.6~~ Klickitat PUD shall report to Ecology any equipment breakdown, or malfunction, that results in the emission of raw landfill gas, within 30 days of occurrence, including a description of immediate remedial measures undertaken by the source to correct the problem and prevent further uncontrolled emissions into the atmosphere.

~~2.10.82.10.7~~ Records required under 40 CFR part 60, subparts ~~KKKK and III~~ shall be kept.

~~2.10.92.10.8~~ CEMS reports shall be submitted at least monthly within 30 days of the end of each calendar month and in a format approved by Ecology.

2.10.9.1 CEMS reports shall include, but not be limited to, the following:

- a) Process or control equipment operating parameters;
- b) The daily maximum and average concentration, in the units of the standard(s), for each pollutant monitored;
- c) The duration and nature of any monitor down-time;
- d) Results of any monitor audits or accuracy checks;
- e) Results of any required stack tests.

2.10.9.2 For each occurrence of monitored emissions in excess of the standard (by CEMS or approved alternative methodology), the report shall include the following:

- a) The time of occurrence;
- b) Magnitude of the excess emission or process parameters;
- c) The duration of the excess;
- d) The probable cause;
- e) Any corrective actions taken or planned;
- f) Any other agency contacted.

~~2.10.102.10.9~~ Reporting required by 40 CFR part 60, subparts ~~KKKK and III~~ shall be submitted to Ecology and EPA.

~~2.10.112.10.10~~ The actual NO_x and CO emissions, including startup and shutdown emissions, from the turbines, shall be quantified monthly, using CEMS and portable monitor data, respectively, over the most recent 12-month period.

~~2.10.12~~.10.11 Records of all data required by this Order shall be maintained in a readily retrievable manner for a period of five (5) years or more, and be made available on-site to authorized representatives of Ecology during any site inspection.

2.11 FUGITIVE DUST CONTROL

2.11.1 Fugitive dust will be controlled in accordance with a Fugitive Dust Control Plan, to be prepared by the permittee. Fugitive Dust Control Plan development shall be completed prior to beginning actual construction of the source. Failure to follow the Fugitive Dust Control Plan may be considered proof that the source was not properly operated and maintained.

2.11.2 The Fugitive Dust Control Plan shall include measures to ensure there is no vehicle track-out onto off-site roads during construction and facility operation.

2.11.3 All disturbed surfaces shall be paved, graveled, or re-vegetated at sufficient intervals to prevent visible emissions.

2.12 GENERAL CONDITIONS

2.12.1 No outdoor burning shall be performed at the site.

2.12.2 This Order shall become invalid if construction of the project is not commenced by April 8, 2010, if construction is discontinued for a period of 18 months or more, or if construction is not complete within a reasonable time. Ecology may extend the 18-month period upon a satisfactory showing that an extension is justified.

~~2.12.12~~.12.3 It shall be grounds for rescission of this approval if physical operation of the source is discontinued for a period of eighteen (18) months or more. Ecology may extend the 18-month period upon a satisfactory showing that an extension is justified.

~~2.12.22~~.12.4 Emissions inventory information and other information may be requested by Ecology. Unless otherwise specified, emissions information requested by Ecology shall be submitted within 30 days of receiving the request.

~~2.12.32~~.12.5 Access to the source by the United States Environmental Protection Agency or the Department of Ecology shall be permitted upon request for the purpose of compliance assurance inspections. Failure to allow access is grounds for revocation of the Order approving the Notice of Construction application.

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~~2.12.42.12.6~~ 2.12.42.12.6 An emergency spill plan shall be in place during operation of the source, and all operations personnel shall be familiar with this plan. The plan shall be posted at the source. Any petroleum or chemical spills shall be reported immediately to the Department of Ecology, Central Regional Office, at (509) 575-2490.

~~2.12.52.12.7~~ 2.12.52.12.7 Operation of equipment must be conducted in compliance with all data and specifications submitted as part of the Notice of Construction application unless otherwise approved by Ecology. Any activity undertaken by the permittee, or others, in a manner which is inconsistent with the application or this Order, shall be subject to Ecology enforcement under applicable regulations.

~~2.12.62.12.8~~ 2.12.62.12.8 Nothing in this Order shall be construed so as to relieve the permittee of its obligations under any state, local, or federal laws or regulations.

~~2.12.72.12.9~~ 2.12.72.12.9 Legible copies of this Order approving the Notice of Construction application, the O&M manual, and the Fugitive Dust Control Plan shall be displayed on-site in a location known by and available to employees in direct operation of the described equipment, and shall be available to Ecology upon request.

All plans, specifications and other information submitted to Ecology relative to this project and further documents and any further authorizations or approvals or denials in relation thereto, ~~shall be kept at the Central Regional Office of the Department of Ecology in the “Air Quality Controlled Sources” files and by such action shall be~~ hereby incorporated herein and made a part ~~hereof of this Order.~~

Authorization may be modified, suspended or revoked in whole or part for cause, including, but not limited to, the following:

- I. Violation of any terms or conditions of this authorization;
- II. Obtaining this authorization by misrepresentation or failure to disclose fully all relevant facts.

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

APPEAL INFORMATION:

You have a right to appeal this permit. To appeal this you must:

- File your appeal with the Pollution Control Hearings Board within 30 days of the “date of receipt” of this document. Filing means actual receipt by the Board during regular office hours.
- Serve your appeal on the Department of Ecology within 30 days of the “date of receipt” of this document. Service may be accomplished by any of the procedures identified in WAC 371-08-305(10). “Date of receipt” is defined at Revised Code of Washington (RCW) 43.21B.001(2).

Be sure to do the following:

- Include a copy of (1) the permit you are appealing and (2) the application for the permit.
- Serve and file your appeal in paper form; electronic copies are not accepted.

1. To file your appeal with the Pollution Control Hearings Board

Mail appeal to:

The Pollution Control Hearings Board
PO Box 40903
Olympia, WA 98504-0903

OR

Deliver your appeal in person to:

The Pollution Control Hearings Board
4224 – 6th Ave SE Rowe Six, Bldg 2
Lacey, WA 98503

2. To serve your appeal on the Department of Ecology

Mail appeal to:

The Department of Ecology
Appeals Coordinator
P.O. Box 47608
Olympia, WA 98504-7608

OR

Deliver your appeal in person to:

The Department of Ecology
Appeals Coordinator
300 Desmond Dr SE
Lacey, WA 98503

3. And send a copy of your appeal to:

Susan Billings
Department of Ecology
Central Regional Office
15 West Yakima Avenue, Suite 200
Yakima, Washington 98902-3452

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For additional information, visit the Environmental Hearings Office Website:

<http://www.eho.wa.gov>

To find laws and agency rules, visit the Washington State Legislature Website:

<http://www1.leg.wa.gov/CodeReviser>

DATED at Yakima, Washington this 8th-[date] day of ~~October~~[month], 2008~~9~~.

Reviewed By:

David Ogulei, Ph.D., P.E.
Air Quality Program
Department of Ecology

Approved By:

Susan M. Billings
Air Quality Section Manager
Department of Ecology

PROPOSED