



DEPARTMENT OF
ECOLOGY
State of Washington

**STATEMENT OF BASIS
FOR
FINAL AIR OPERATING PERMIT NO. 06AQ-C026 THIRD REVISION
PUBLIC UTILITY DISTRICT NO. 1 OF KLICKITAT COUNTY'S
H.W. HILL LANDFILL GAS POWER PLANT
KLICKITAT COUNTY, WASHINGTON**

**PREPARED BY:
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JULY 27, 2009

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1.0 LIST OF ABBREVIATIONS

| | |
|------------------|---|
| AOP | air operating permit |
| BACT | best available control technology |
| CFR | Code of Federal Regulations |
| CO | carbon monoxide |
| Ecology | Washington State Department of Ecology |
| EPA | United States Environmental Protection Agency |
| ° F | degrees Fahrenheit |
| hr/yr | hours per year |
| KPUD | Public Utility District No. 1 of Klickitat County |
| Landfill | Roosevelt Regional Landfill |
| LFG | landfill gas |
| MRR | monitoring, recordkeeping, and reporting |
| MW | megawatt |
| NMOC | non methane organic compound |
| NOC | Notice of Construction |
| NO _x | oxides of nitrogen |
| NSPS | new source performance standard |
| PC | pre-chamber |
| PM ₁₀ | particulate matter with an aerodynamic diameter of 10 micrometers or less |
| Plant | H.W. Hill Landfill Gas Power Plant |
| PSD | prevention of significant deterioration |
| psig | pounds per square inch gage (above ambient pressure) |
| RDC | Regional Disposal Company |
| S | state-only enforceable |
| SO ₂ | sulfur dioxide |
| VOC | volatile organic compound |
| WAC | Washington Administrative Code |
| % | percent |

2.0 GENERAL INFORMATION

Company Name: Public Utility District No. 1 of Klickitat County

Source Name: H.W. Hill Landfill Gas Power Plant

Owner: Public Utility District No. 1 of Klickitat County

Unified Business Identification Number: 202-000-284

Standard Industrial Classification Code: 4911 (electrical power generation, transmission, or distribution)

Mailing Address: 1313 South Columbus Avenue
Goldendale, WA 98620

Source Address: 502 Roosevelt Grade Road
Roosevelt, WA 99356

Responsible Officials: Winston G. Low
General Manager
Public Utility District No. 1 of Klickitat County
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Goldendale, WA 98620
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Fax: 509-773-4969
Email: glow@klickpud.com

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Goldendale, WA 98620
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Email: rihrig@klickpud.com

Source Contact: Jonah Humphreys
LFG Plant Supervisor
Phone: 509-384-5020
Email: jhumphreys@klickpud.com

Basis for Title V Applicability:

KPUD is subject to Title V, Air Operating Permit (AOP) Regulation, by virtue of the potential-to-emit greater than 100 tons per year of carbon monoxide and oxides of nitrogen.

Attainment Classification:

KPUD is located in an area that is unclassified for all criteria pollutants.

Timeline

See also section 6.0 (below).

June 6, 2005 – Ecology received renewal Title V Air Operating Permit application.

December 10, 2005 – Notice of Complete renewal application published in Permit Register.

January 30, 2006 – Ecology issued Draft Title V Air Operating Permit & began public comment period. February 10, 2006 – Notice of Draft Permit published in Permit Register. February 9, 2006 – Notice of Draft Permit published in Goldendale Sentinel. March 13, 2006 – End of public comment period.

April 11, 2006 – Ecology issued Proposed Title V Air Operating Permit.

June 8, 2006 – Ecology received notice from EPA that, “[t]he permit is now eligible for issuance.”

August 4, 2006 – Ecology issued Final Air Operating Permit No. 06AQ-C026.

August 10, 2006 – Notice of Final Permit published in Permit Register.

March 12, 2008 – Ecology received notification of a change of responsible official.

March 25, 2008 – Ecology issued Final Air Operating Permit No. 06AQ-C026 First Revision

February 13, 2009 – Ecology received notification of a change of responsible official.

March 18, 2009 – Ecology issued Final Air Operating Permit No. 06AQ-C026 Second Revision

May 28, 2009 – Ecology received notification of a change of responsible official.

July 27, 2009 – Ecology issued Final Air Operating Permit No. 06AQ-C026 Third Revision

3.0 BACKGROUND

3.1 INTRODUCTION

This document sets forth the legal and factual basis for the permit conditions in a DRAFT AOP issued by the State of Washington Department of Ecology for a power generation facility, operated by Public Utility District No. 1 of Klickitat County (KPUD) and located near Roosevelt, Washington. This document is called a “statement of basis” and is required by Washington State regulations [Chapter 173-401 WAC]. A statement of basis does not contain enforceable permit conditions. Enforceable permit conditions are contained in the AOP itself.

4.0 SOURCE DESCRIPTION

4.1 PHYSICAL DESCRIPTION

H.W. Hill Landfill Gas Power Plant is a 10.5 MW landfill-gas-to-energy facility built on a five acre parcel of land leased from Regional Disposal Company. It is located within the Roosevelt Regional Landfill property boundary in the east half of Section 27, Township 4 North, Range 21 East, Willamette Meridian, approximately five miles North of Roosevelt in Klickitat County.

The Plant occupies approximately three acres when the utility district's electrical substation is included. The remaining space is either under agricultural use or is left as open space. Access to the site is via the Landfill's haul road. The Plant is located approximately one mile east of the landfill operations building. A facility site map is located at Figure 1.

4.2 DESCRIPTION OF PROCESSES

A facility process flow diagram is located at Figure 2. Raw landfill gas is delivered to the Plant from Roosevelt Regional Landfill's blower/flare facility via an above-ground pipeline. There is a low-point condensate drain near the Landfill's facility. Total pipeline distance is about 720 feet. All condensates collected at the drain and at other points in the fuel system are piped to the Landfill's leachate collection pond. Upon entering the Plant, the landfill gas is directed through one of two stainless steel vessels (configured in parallel) containing iron sponge media, for hydrogen sulfide removal. Next the landfill gas enters the compressor building where the pressure is increased from less than one psig to about 62 psig by three variable-output rotary-screw type compressors. Each compressor has an inlet water separator and an outlet coalescing filter.

The landfill gas is discharged to the air/gas heat exchangers and into a common pipe leading to an industrial type refrigeration cooling unit. This unit cools the landfill gas to approximately 40 °F, thus condensing most of the remaining moisture and some contaminants, and then the landfill gas is re-heated above the dew point by incoming gas. Finally, the gas enters two stainless steel vessels (configured in series) containing activated carbon, for siloxane removal prior to piping the processed gas into the generator building.

Both fuel streams (main gas and pre-chamber gas) pass through additional filters prior to entering the fuel gas regulators mounted on or near the engines. Fuel enters the engines and is combusted via spark ignition, and the resulting hot exhaust gas is passed through intercooled turbochargers which provide pressurized intake air. The engines are designed to operate very lean with 10% exhaust oxygen.

The engines are directly coupled to the 4160 Volt three-phase alternating-current synchronous generators. The product, electrical energy, passes through protective breakers and is transformed in the substation to 69,000 Volts for delivery to the transmission system. During normal operations, power generation occurs 24 hours per day, seven days per week, 365 days a year (8760 hr/yr). However, the engines do require periodic maintenance shutdowns, and the utility system experiences several outages per year. Ecology limits each engine-generator to 8585 operating hours per year.

Process #1, Source-Wide

Process #1 includes facility-wide emissions, such as fugitive dust from motor vehicle operation, and emissions related to plant-wide support services such as the landfill fuel delivery system, condensate drain system, lubricating oil storage tanks, and other maintenance, housekeeping, and miscellaneous, insignificant emissions activities. Minor welding operations are performed on-site. Process #1 emission limits, work practice standards and permit conditions also apply to all significant emission units located at the source. The source's estimated potential emissions are listed in Table 1.

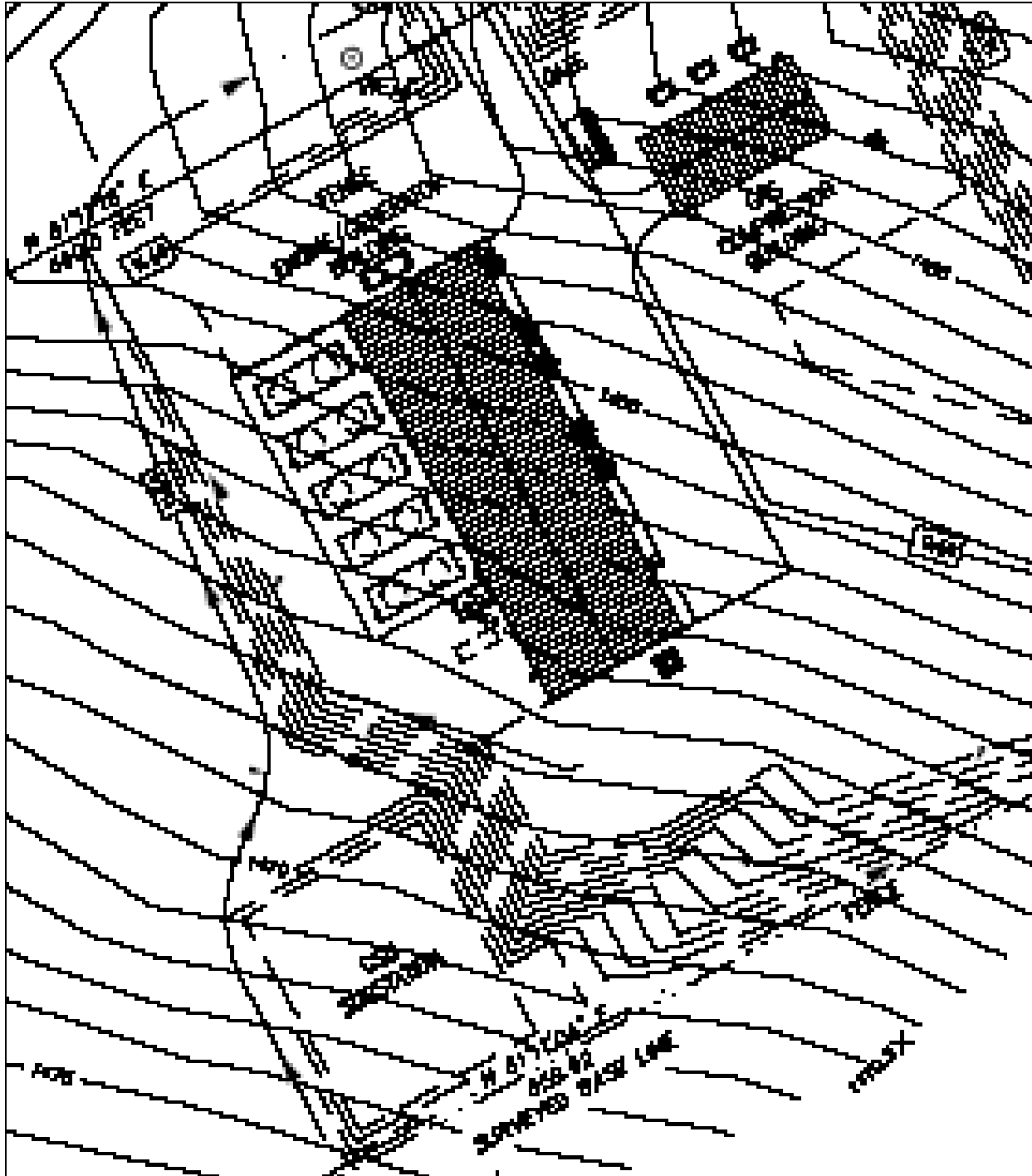


Figure 1. Site map of H.W. Hill Landfill Gas Power Plant (adapted from 6/2/05 AOP application, submitted by Public Utility District No. 1 of Klickitat County).

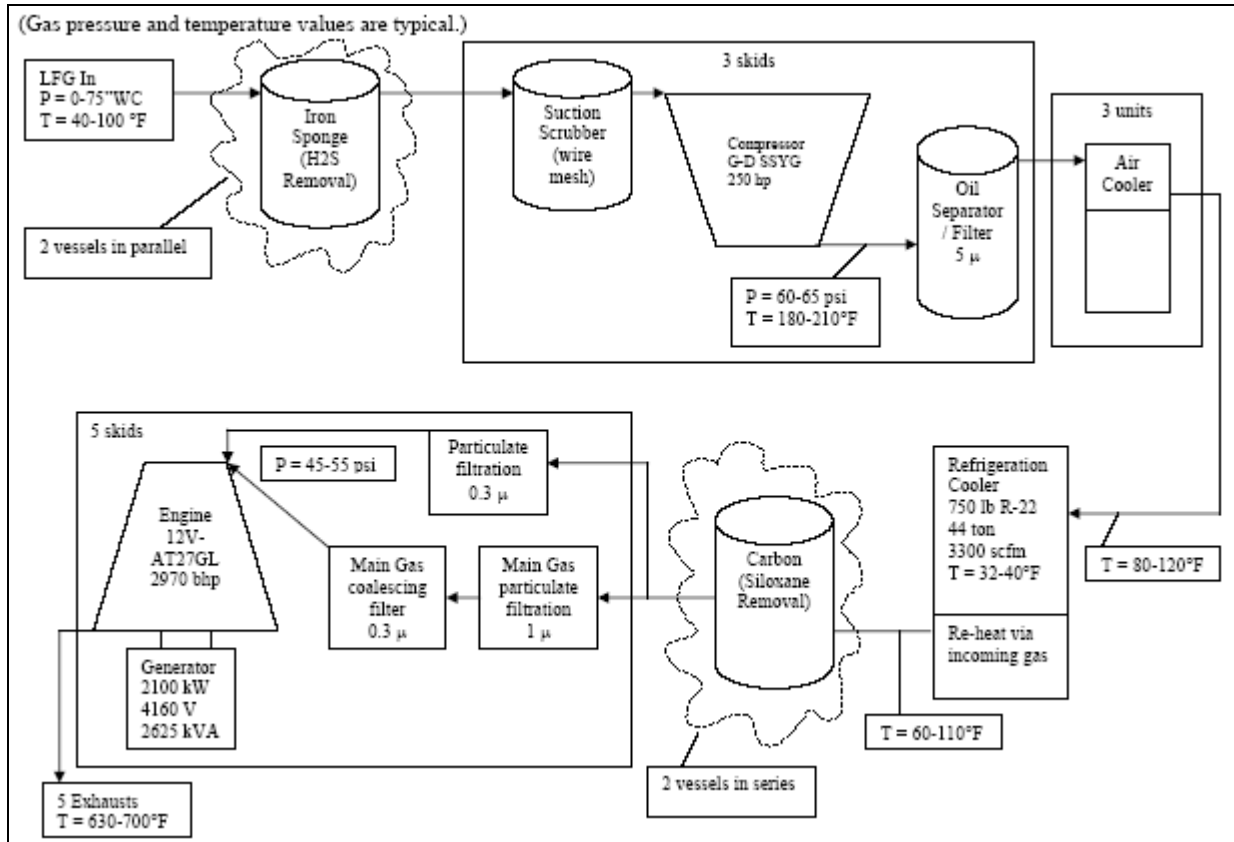


Figure 2. H.W. Hill Landfill Gas Power Plant facility process flow diagram (adapted from 6/2/05 AOP application, submitted by Public Utility District No. 1 of Klickitat County).

Table 1. Summary of maximum potential air emissions (potential-to-emit).

| POLLUTANT | UNITS | (5) ENGINE GENERATOR SETS |
|---|--------|---------------------------|
| PM₁₀ | ton/yr | 14 |
| SO₂ | ton/yr | 98 |
| CO | ton/yr | 238 |
| NO_x | ton/yr | 210 |
| VOC | ton/yr | 35 |
| Toxic Air Pollutants | | |
| Acetone | lb/yr | 65 |
| Benzene | lb/yr | 12 |
| Cryofluorane (Freon 114) | lb/yr | 5 |
| Cyclohexane | lb/yr | 58 |
| Dichlorodifluoromethane (Freon 12) | lb/yr | 39 |
| Ethyl Alcohol | lb/yr | 188 |
| Ethyl Benzene | lb/yr | 57 |
| Ethyl Chloride (Chloroethane) | lb/yr | 6 |
| Ethylidene Chloride (1,1-Dichloroethane) | lb/yr | 16 |
| Heptane | lb/yr | 59 |
| Hexane | lb/yr | 56 |
| Hydrogen Chloride | lb/yr | 5176 |
| Hydrogen Sulfide | lb/yr | 2043 |
| Isopropylacetone (4-Methyl-2-pentanone) | lb/yr | 29 |
| Isopropyl Alcohol (2-Propanol) | lb/yr | 48 |
| Mesitylene (1,3,5-Trimethylbenzene) | lb/yr | 8 |
| Methanethiol (Methyl mercaptan) | lb/yr | 14 |
| Methylene Chloride | lb/yr | 28 |
| Methyl Ethyl Ketone (2-butanone) | lb/yr | 179 |
| Pseudocumene (1,2,4-Trimethylbenzene) | lb/yr | 16 |
| Styrene | lb/yr | 8 |
| Tetrachloroethene | lb/yr | 20 |
| Trichlorofluoromethane (Freon 11) | lb/yr | 9 |
| Tetrahydrofuran | lb/yr | 56 |
| Toluene | lb/yr | 336 |
| Trichloroethene | lb/yr | 10 |
| Vinyl Chloride | lb/yr | 8 |
| Xylenes | lb/yr | 177 |

Process #2, Generation

Process #2 is the production of electrical energy by burning landfill gas (approximately 55% methane, 45% carbon dioxide, and various other trace gases) within large reciprocating piston internal combustion engines which turn alternating current generators synchronized to the utility transmission system. Emission points include the exhaust stacks of the engine-generators and their crankcase vents. The engine exhaust stacks and crankcase vents are all located along the westward outside wall of the generator building.

Process #3, Landfill Gas Treatment

Process #3 is the landfill gas treatment equipment. Landfill gas treatment consists of a portion of the original components plus additional new gas cleaning components. Additionally, in resolution of air quality violations, Ecology and KPUD entered into Settlement Agreement and Agreed Order No. 2854, on October 15, 2005.

5.0 NEW SOURCE REVIEW HISTORY

In Washington State, new sources of air pollutant are potentially subject to four types of new source review (air quality permitting). Federal new source review includes Prevention of Significant Deterioration (Title 40 Code of Federal Regulations Part 52.21) and Nonattainment New Source Review (Title 40 Code of Federal Regulations Part 52.24). The Federal programs apply to large sources with potential emissions equal or greater than specified thresholds. State new source review, referred to as Notice of Construction permitting, applies to smaller sources, and the lesser emissions at the larger sources. Notice of Construction permitting may be required for criteria pollutants (WAC 173-400-110) and/or toxic air pollutants (WAC 173-460-030). In addition to traditional State new source review, temporary and portable sources, replacement or substantial alternation of emission control technology at an existing stationary source, and a general order of approval for a specific type of emission unit or source, may be authorized according to WAC 173-400-035, WAC 173-400-116, and WAC 173-400-560, respectively.

5.1 Generation.

Ecology originally authorized the installation and operation of five internal combustion (IC) engines using landfill gas as fuel to generate up to 10.5 megawatts of electrical power, through Notice of Construction Approval Order No. DE 98AQ-C174, issued December 1, 1998. Initially, four IC engines were constructed. The first engine commenced operation on April 15, 1999, the first kilowatt-hour was generated on April 23, 1999, and commercial power sales began on June 1, 1999.

Source testing performed in May 1999, revealed engine Volatile Organic Compound (VOC) destruction efficiencies less than those required as Best Available Control Technology (BACT), under the original Order. Order No. DE 98AQ-C174 First Revision, amended BACT for VOC, with the addition of an alternate concentration based emission limit.

The fifth IC engine commenced operation in June, 2000.

On March 11, 2005, Ecology issued emission control technology Order No. 05AQ-C014, authorizing the installation and operation of a modified landfill gas treatment system.

Additionally, in resolution of air quality violations, Ecology and KPUD entered into Settlement Agreement and Agreed Order No. 2854, on October 15, 2005. Condition IV.C., of the Agreed Order addressed installation and pilot testing of the approved landfill gas treatment system. For purposes of pilot testing the system, KPUD asked for temporary relaxation of their CO emission limits. Ecology granted revisions to the CO emission limits, in Order No. DE 98AQ-C174 Second Revision, issued January 20, 2006.

5.2 Landfill Gas Treatment.

On February 10, 2005, KPUD submitted a Notice of Construction application for the modification of the landfill gas cleaning system at their existing H.W. Hill Landfill Gas Power Plant. KPUD asked for flexibility in implementing the system, due to uncertainty in the system's actual performance. The application was processed as an emission control technology order, per WAC 173-400-114, and approved the system modification, including the addition of iron sponge media and granular carbon beds, designed to clean the landfill gas prior to combustion in the five internal combustion IC engines. Ecology approved the modified treatment system through issuance of Order No. 05AQ-C014, on March 11, 2005. The landfill gas cleaning system became operational on August 29, 2005.

5.3 Prevention of Significant Deterioration (PSD).

The H.W. Hill Landfill Gas Power Plant and the Roosevelt Regional Landfill are considered separate sources because they have separate ownership (i.e. different standard industrial classification codes).

The current Plant, as permitted under NOC Order No. DE 98AQ-C174 2nd Revision, "is limited to five or less engine-generator sets burning 3200 or less cubic feet per minute of landfill gas. However, in future years the landfill gas generation rate of Roosevelt Regional Landfill is expected to increase. Plants with the potential to emit greater than 250 tons per year of a criteria pollutant are required to obtain a second air quality permit, the Prevention of Significant Deterioration (PSD) permit, prior to starting construction. The permittee has chosen not to apply for a PSD permit at this time because emissions of the five engine-generator sets planned are below 250 tons per year and because the permittee does not know whether more than five engine-generator sets will ever be installed. In the event that available landfill gas and market conditions in the future result in a proposal by the permittee to install a sixth engine-generator set, a PSD permit will need to be obtained prior to installing the sixth engine-generator set (because the entire Plant would have a potential to emit greater than 250 tons per year of CO). This PSD permit also would include the five engine-generator sets being installed under this Notice of Construction permit. A determination of Best Available Control Technology (BACT) at the time of the future PSD permit would include the five engine-generator sets being installed under this Notice of Construction permit. Such a BACT determination could conclude that more stringent controls are required for the entire Plant, meaning that the five engine-generator sets installed under this permit could need to be retrofitted or replaced in order for the expansion to take place in accordance with the PSD permit. In no case shall a sixth engine-generator set be installed prior to December 31, 2001."

6.0 AIR OPERATING PERMIT HISTORY

Title V of the 1990 Federal Clean Air Act Amendments required all states to develop a renewable operating permit program for industrial and commercial source of air pollution. Congress structured the air operating permit system as an administrative tool for applying existing regulations to individual sources. The goal is to enhance accountability and compliance by clarifying in a single document which requirements apply to a given business or industry.

The Washington State Clean Air Act (chapter 70.94 Revised Code of Washington) was amended in 1991 and 1993 to provide the Department of Ecology and local air agencies with the necessary authority to implement a state-wide operating permit program. The law requires all sources emitting one hundred tons or more per year of a regulated pollutant, or ten tons of a hazardous air pollutant, or twenty-five tons in the cumulative of hazardous air pollutants, to obtain an operating permit.

Ecology authored chapter 173-401 of the Washington Administrative Code (WAC), which specified the requirements of Washington State's Operating Permit Regulation. This regulation became effective on November 4, 1993. On November 1, 1993, This regulation was submitted to the United States Environmental Protection Agency (EPA), for program approval. On December 9, 1994, EPA granted interim approval of Chapter 173-401 WAC. This interim approval was extended until EPA granted final approval on August 13, 2001. The current version of this regulation was filed on September 16, 2002.

On November 30, 1999, Ecology notified KPUD that a complete Air Operating Permit application was due, no later than April 11, 2000, based upon records that the H.W. Hill Landfill Gas Power Plant commenced operation on or about April 12, 1999. At that same time, Ecology sent an Air Operating Permit application to KPUD. Subsequently, KPUD notified Ecology that the first engine commenced operation on April 15, 1999, and thus their AOP application was due on April 14, 2000. Ecology received KPUD's initial application on March 15, 2000, and issued a notification of incompleteness on March 28, 2000. Ecology received KPUD's complete and timely Air Operating Permit application on April 14, 2000. KPUD's initial draft permit was issued and began public comment on May 2, 2001. The public comment period closed, with no comments having been received, on June 9, 2001. Ecology issued a proposed permit, for EPA review, on June 13, 2001, and received notification from EPA that the permit was "eligible for issuance," on July 30, 2001. Ecology issued final initial Air Operating Permit No. 01 AQCR-3159, to KPUD, on August 6, 2001.

On March 4, 2004, Ecology received KPUD's notice of a new responsible official. The new responsible official was then incorporated as an administrative amendment and was issued as AOP No. 01 AQCR-3159 First Revision, on March 17, 2004.

On November 1, 2004, Ecology received KPUD's request for "integrated review" of revisions to NOC No. DE 98AQ-C174 First Revision and the resulting significant modifications to the Air Operating Permit. KPUD withdrew the request for revisions on May 27, 2005. On June 6, 2005, Ecology received KPUD's notice of an alternate responsible official, and a timely and complete AOP renewal application.

On November 10, 2005, Ecology received KPUD's request for "integrated review" of revisions to NOC No. DE 98AQ-C174 First Revision and the resulting significant modifications, per WAC 173-401-725(4), to their Air Operating Permit. (See also Section 5.2.) Ecology issued draft revisions to both permits and initiated public comment, on December 9, 2005. The public comment period closed on January 16, 2006; No public comments were received. On January 18, 2006, Ecology issued Proposed AOP No. 01 AQCR-3159 Second Revision, and asked for expedited EPA review. On January 20, 2006, EPA declared the permit revisions, "eligible for issuance." Air Operating Permit No. 01 AQCR-3159 Second Revision was issued January 20, 2006.

KPUD's renewal draft permit was issued and began public comment on January 30, 2006. The public comment period closed, with no comments having been received, on March 13, 2006. Prior to issuance of the proposed permit, Ecology updated AOP Condition 5.2.16 to reflect an applicable requirement change made in writing in a letter dated April 5, 2006.

7.0 FEDERAL LANDFILL REGULATIONS

7.1 New Source Performance Standard (NSPS).

On March 12, 1996, EPA promulgated the Standards of Performance for Municipal Solid Waste Landfills (Title 40 Code of Federal Regulations Part 60 Subpart WWW). The NSPS applies to each municipal solid waste landfill that commenced construction, reconstruction, or modification, or began accepting waste, on or after May 30, 1991.

The Roosevelt Regional Landfill, where the Plant is located, is subject to the requirements of 40 CFR Part 60 Subpart WWW, Standards of Performance for Municipal Solid Waste Landfills (NSPS). As owner and operator of the affected facility, Regional Disposal Company (RDC) is required to demonstrate compliance with all applicable provisions of NSPS Subpart WWW, including 40 CFR 60.752(b)(2)(iii)(B), requiring reduction of NMOC by 98 weight percent or reduce the outlet NMOC concentration to less than 20 parts per million by volume. Gas emissions generated by the landfill are collected and sent to KPUD, which combusts those gases to generate electricity for sale. KPUD is located adjacent to RDC on land leased from RDC. Currently, RDC and KPUD are separate entities, not under "common control" as that term is used in the Clean Air Act. And, although a contract exists between RDC and KPUD, the owner of a regulated facility cannot contract away its liability. Therefore, KPUD is not subject to the NSPS (See 8/15/00 letter from Douglas Hardesty, EPA Region 10, to Ali Nikukar, ODEQ, regarding Valley Landfill NSPS Subpart WWW Applicability, for further guidance on this topic.)

7.2 National Emission Standard for Hazardous Air Pollutants (NESHAP).

On January 16, 2003, EPA promulgated the National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills (Title 40 Code of Federal Regulations Part 63 Subpart AAAA). The NESHAP applies to municipal solid waste landfills that have accepted waste since November 8, 1987, or has additional capacity for waste deposition, and may include a bioreactor, and meets any one of three other criteria. Again, while the Roosevelt Regional Landfill is subject to these requirements, the H.W. Hill Landfill Gas Power Plant is not.

8.0 COMPLIANCE ASSURANCE MONITORING (CAM).

8.1 Criteria.

On October 22, 1997, EPA promulgated the Compliance Assurance Monitoring rule (Title 40 Code of Federal Regulations Part 64). This Rule requires specialized pollutant-specific monitoring for those emission units which meet the following criteria:

8.1.1 The unit is located at a Title V Air Operating Permit source

8.1.2 The unit is subject to an emission limitation or standard for the applicable regulated air pollutant (or surrogate thereof), other than an emission limitation or standard that is exempt.

8.1.3 The unit uses a control device to achieve compliance with any such emission limitation or standard; and

8.1.4 The unit has potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as an Air Operating Permit source.

8.2 Applicability.

The H.W. Hill Landfill Gas Power Plant does not employ any “control devices” and the uncontrolled potential to emit, of each engine, is less than major source thresholds. Therefore, CAM is not applicable at the Plant.

9.0 INSIGNIFICANT EMISSION UNITS AND ACTIVITIES

The source contains the following categorically exempt insignificant emission units:

- lubricating oil storage tanks [WAC 173-401-532(3)]
- fuel analyzer vent [WAC 173-401-532(8)]
- generator room vents [WAC 173-401-532(9)]
- internal combustion engines on motor vehicles [WAC 173-401-532(10)]
- brazing, soldering, welding, etc. [WAC 173-401-532(12)]
- plant upkeep, painting, etc. [WAC 173-401-532(33)]
- portable drums and totes [WAC 173-401-532(42)]
- comfort air conditioning [WAC 173-401-532(46)]
- bathroom vent [WAC 173-401-532(48)]
- office activities [WAC 173-401-532(49)]
- personal care activities [WAC 173-401-532(50)]
- sampling connections [WAC 173-401-532(51)]
- fuel and exhaust emissions from motor vehicles [WAC 173-401-532(54)]
- machining operations-indoors [WAC 173-401-532(55)]
- sample gathering, prep, mgmt. [WAC 173-401-532(73)]
- repair & maintenance [WAC 173-401-532(74)]
- batteries & battery charging [WAC 173-401-532(77)]
- air compressors & tools [WAC 173-401-532(88)]
- non-PCB oil-filled breakers, etc. [WAC 173-401-532(118)]

10.0 GAPFILLING

Section 5 of the air operating permit identifies requirements that are applicable to existing emission units at the source. The air operating permit must contain emission limitations and standards, including those operational requirements and limitations that assure compliance with all applicable requirements at the time of permit issuance. Where the applicable requirement does not require periodic testing or monitoring, periodic monitoring sufficient to yield reliable data has been identified and included in the permit. This action is termed gapfilling.

The last column of the tables in section 5, contain the monitoring, recordkeeping, and reporting to be performed by the permittee (MRR). This column identifies the periodic action that must be taken to demonstrate compliance with the applicable requirement. It should be noted that in addition to the MRR a source must consider all other credible evidence when certifying to their compliance status.

For some applicable requirements no action is warranted and instead the permittee will annually certify their compliance status. These requirements are identified with, "no additional monitoring required," stated in the MRR column.

Many applicable requirements specify periodic MRR while, where appropriate, gapfilling was used for the remainder. When not specified by the underlying applicable requirement, the source of the MRR is identified in brackets for each MRR requirement. Those that reference WAC 173-401-615(1) were gapfilled. Below is a brief explanation of the basis for each instance of gapfilling.

Table 2. Identification and basis of “gapfilled” items.

| Applicable Requirement | Gapfilling basis |
|-----------------------------------|---|
| 5.1.3 | This source has not had a history of visible emissions and is not expected to have problems complying with established visible emission standards. Monthly MRR was determined to be appropriate. Additionally, action is required when visible emissions are observed at times other than the monthly survey. |
| 5.1.4, 5.1.5, 5.1.6, 5.1.7, 5.1.9 | This source has not had a history of violating these "nuisance" requirements. Since these could be subjective, we determined it was appropriate to consider complaints in MRR. |
| 5.1.13, 5.2.11, 5.2.12, 5.2.15 | We believe that these requirements are best served by requiring the source to annually review the specific documents. |
| 5.3.2 | A log kept of hours of operation required both of the IC engines and the landfill gas treatment system should demonstrate whether the treatment system is being employed at all times when the IC engines are being operated. |

Those requirements that specify “no additional monitoring required” as the MRR, have been determined to require no specific monitoring. However, the responsible official will be required to certify the source’s compliance status, with these requirements, at least annually.

11.0 STREAMLINING

Streamlining is the subsuming of a less stringent requirement by a clearly more stringent requirement. This Air Operating Permit contains no streamlining.

12.0 COMPLIANCE CERTIFICATION

By virtue of the Air Operating Permit application and the issuance of this permit, the reporting frequency for compliance certification for this source shall be annual.

13.0 ENFORCEABILITY

Unless specifically designated otherwise, all terms and conditions of the Air Operating Permit, including any provisions designed to limit the source's potential to emit, are enforceable by EPA, and citizens, under the Federal Clean Air Act. Those terms and conditions which are designated as state-only enforceable, by (S), are enforceable only by Ecology. It should be noted that state-only terms and conditions will become federally enforceable upon approval of the requirement in the State Implementation Plan. However, the enforceability of the terms and conditions of this Air Operating Permit are not expected to change during the Permit term. All terms and conditions of the Air Operating Permit are enforceable by Ecology.

Following is an example of how to identify a state-only enforceable condition. At the end of Condition 2.7.2 the following notation occurred: "[WAC 173-400-107, 8/20/93, 7/11/02 (S)]." If a version of the regulation is cited with no reference to enforceability, it is federally enforceable. Thus, this notation means that the authority for this permit condition is contained in the 8/20/93 version of WAC 173-400-107 (this is the version of WAC 173-400-107 that is in the Washington State Implementation Plan (SIP) and is thus federally enforceable) and in the 7/11/02 version of WAC 173-400-107. The (S) after 7/11/02 means that the 7/11/02 version of WAC 173-400-107 is State-only enforceable.

14.0 OPERATIONAL FLEXIBILITY

The permittee did not request or specify any alternative operating scenarios.

In the event that an emission unit is not operated during a period equal to or greater than the monitoring period designated, no monitoring is required. (ex. A monthly visible emission survey is not required if the emission unit is not operated during the month that the survey covers. A monthly visible emission survey is required if the emission unit is operated for any portion of the month that the survey covers.) Recordkeeping and reporting must note the reason why, and length of time, the emission unit was not operated.

Additionally, Ecology has authorized a temporary relaxation of one engine's CO emission limits for purposes of pilot testing the landfill gas cleaning system.

15.0 OTHER PERMITTING ISSUES

15.1 STATE AMBIENT AIR QUALITY STANDARDS.

The following regulations are ambient air quality standards that apply generally to all areas of the state. There are no on-going monitoring, recordkeeping, or reporting requirements specific to the source to prove compliance with the ambient air quality standards. Compliance with the ambient air quality standards is required, and the following regulations are triggered for any source when undergoing New Source Review for Notice of Construction or Prevention of Significant Deterioration permitting and are generally reported in the permits as findings as required, or when an actual or suspected violation of an ambient air quality standard is found locally.

WAC 173-470-010, -020, -030, -100, -160, 1/3/89

WAC 173-470-110, -150, 1/3/89 (S)

WAC 173-474, 9/30/87 (S)

WAC 173-475, 2/29/80 (S)

16.0 COMPLIANCE SUMMARY

16.1 VOC Control Efficiency

Condition 4.5.4, of Notice of Construction Approval Order No. DE 98AQ-C174, issued December 1, 1998, required that volatile organic compound (VOC) control efficiency of the engine / generator sets be at least 98.0 percent. Required VOC emission testing, in May 1999, demonstrated that VOC control efficiencies for the existing four sets was 95.48%, 94.87%, 95.88%, and 94.17%; the required VOC control efficiency was not met. The source test results were reported to Ecology on July 12, 1999. In response, Ecology issued Notice of Violation No. DE 99AQ-C189, on October 19, 1999. Additionally, KPUD asked that Ecology reconsider best available control technology (BACT), for VOC, for the sets. Specifically, KPUD requested flexibility in the VOC emissions to mirror flexibility of non-methane organic compound emissions in the federal NSPS standard. (See sections 5.1 and 7.1.) Ecology granted the requested Notice of Construction permit revisions. No penalty was issued. This violation is fully resolved.

16.2 CO Emission Limits

When the IC engines were originally installed, they were each tested shortly after they started operating, and the results indicated that they were in compliance with the carbon monoxide (CO) emission limits. In August 2001, the engines began experiencing problems due to suspected manufacturing defects. KPUD completed repairs on all five engines. Several months after the engines were back on line, KPUD voluntarily conducted source tests on four of the five engines and discovered CO emissions violations. KPUD reported that the most likely cause of the high CO emission was the build up of siloxanes, an impurity in the landfill gas, within the engines. KPUD dismantled the engines, cleaned the siloxane deposits off, and then retested the engines. This subsequent testing showed a decrease in CO emissions, and compliance with the CO emission limits. KPUD developed a protocol for routine cleaning of the engines to minimize siloxane build up and keep the engines in compliance with their CO emission limits.

Additionally, they began investigating gas cleaning technologies to remove the siloxanes from the gas stream prior to the gas entering the engines. On October 25, 2002, Ecology issued Notice

of Violation (NOV) No. 02AQCR-4960, to KPUD, for emitting more CO than allowed by their air quality permit. Specifically, the NOV referenced exceedences, as measured by reference method source testing, in March and May, 2002. As follow up, on November 13, 2002, Ecology stated that, “[b]ased upon the circumstances surrounding the violations and the KPUD’s diligence in responding to the violations, Ecology has decided to take no further enforcement action at this time.” With the understanding that implementation of an aggressive engine head cleaning schedule would keep CO emissions within permitted limits, Ecology considered this violation resolved.

However, in September 2004, it became apparent, to Ecology, that KPUD was failing to consistently maintain CO emissions within their permit limits. On November 29, 2004, Ecology issued Notice of Violation No. 1812, to KPUD, for additional exceedences of their CO emission limits and some reporting violations.

Both of the above specified NOVs were addressed in Settlement Agreement and Agreed Order No. 2854, which became effective on October 14, 2005. The Settlement included payment of \$30,000.00, to the “Air Pollution Control Account,” and specific actions regarding four items: interim engine cleaning, interim source testing, installation of Landfill Gas Cleaning System, and CO Monitoring. The actions have associated deadlines through February 6, 2008. Actions not completed, to date, are specified in the Air Operating Permit. Timely completion of all specified actions will resolve the violations alleged in both NOVs.

Condition IV.A, of the Settlement, was superceded, in writing, by Ecology, in a letter dated April 5, 2006. Additionally Condition IV.B, of the Settlement, was met, and thus deemed to no longer be applicable, by Ecology, in a letter dated August, 4, 2006.