



WASHINGTON STATE
DEPARTMENT OF
E C O L O G Y

STATEMENT OF BASIS
FOR
DRAFT
AIR OPERATING PERMIT
&
PHASE II ACID RAIN PERMIT
No. 11AQ-C167
FOR
GOLDENDALE GENERATING STATION
Klickitat County, Washington

PREPARED BY:
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1.0 LIST OF ABBREVIATIONS

AOP	Air Operating Permit
Btu	British thermal unit
CAM	Compliance Assurance Monitoring
CEMS	Continuous emission monitoring system
CFR	Code of Federal Regulations
CH ₄	Methane
CO	Carbon monoxide
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
°F	Degrees Fahrenheit
Ecology	Washington State Department of Ecology
EPA	United States Environmental Protection Agency
GGG	Goldendale Generating Station
GHG	Greenhouse gas
HAP	Hazardous air pollutants
hp	Horsepower
hr	Hour
HRSG	Heat recovery steam generator
kW	Kilowatt
LHV	Lower heating value
MRR	Monitoring, recordkeeping, and reporting
MT	Metric ton
MW	Megawatt
N ₂ O	Nitrous oxide
NESHAP	National Emission Standards for Hazardous Air Pollutants
NH ₃	Ammonia
NOC	Notice of Construction
NO _x	Oxides of nitrogen
NSPS	New Source Performance Standard
O ₂	Oxygen
ORIS Code	A unique identifier assigned to each power plant in the National Electric Energy Data System
PAH	Poly-aromatic hydrocarbons
PM ₁₀	Particulate matter with an aerodynamic diameter of 10 micrometers or less
PM _{2.5}	Particulate matter with an aerodynamic diameter of 2.5 micrometers or less
PSE	Puget Sound Energy
RICE	Reciprocating internal combustion engine
SCR	Selective catalytic reduction
SO ₂	Sulfur dioxide
TSP	Total suspended particulates
VOC	Volatile organic compound
WAC	Washington Administrative Code

2.0 GENERAL INFORMATION

Company Name: Goldendale Generating Station

Source/Plant Name: Goldendale Generating Station

Parent Company: Puget Sound Energy

Unified Business Identification Number: 602-334-510

Standard Industrial Classification Code: 4911

ORIS Code: 55482

Source Location: 600 Industrial Way
Goldendale, Washington 98620
Klickitat County, Washington
SE ¼ of SW ¼ & SW ¼ of SE ¼ Section 20, T. 4 N., R. 16 E., W.M.

Mailing Address: Puget Sound Energy
PO Box 97034 PSE-04S
Bellevue, WA 98004-97034

Responsible Official/
Designated Representative: Wayne R. Gould
Director, Thermal Generation
Puget Sound Energy
PO Box 97034 PSE-04S
Bellevue, WA 98004-97034
Phone: 425-462-3429
Fax: 425-462-3223
Email: wayne.gould@pse.com

Alternate Responsible Official/
Designated Representative/
Site Contact: Gerald Klug
Plant Manager, Goldendale Generating Station
Puget Sound Energy
PO Box 190
Goldendale, WA 98620
Phone: 509-773-7913
Fax: 509-773-7931
Email: gerald.klug@pse.com

Additional Contacts: Joey Henderson
Program Manager - CT Compliance
Phone: 425-457-5835
Email: joey.henderson@pse.com

Fred Best
Operation and Maintenance Supervisor
Phone: 509-773-7902
Email: fred.best@pse.com

Basis for Title V Operating Permit Applicability:

This is an "affected source" regulated under Title IV of the Federal Clean Air Act. Additionally, as of January 2, 2011, GGS is subject to Title V, Air Operating Permit (AOP) Regulation, by virtue of the potential-to-emit greater than 100,000 tons per year of CO₂ equivalent emissions.

Basis for Title IV Acid Rain Program Applicability:

This unit is a new utility unit, per 40 CFR 72.6(a)(3).

Attainment Classification:

This affected source is located in an area that is unclassified for all criteria pollutants.

Timeline:

- March 15, 2007 – Ecology received notice of transfer of ownership from Goldendale Energy Center LLC to Puget Sound Energy. The company name was changed from Goldendale Energy Center, LLC to Goldendale Generating Station. The facility name was changed from Goldendale Energy Center to Goldendale Generating Station.
- July 2, 2010 – Ecology received the renewal Title V Air Operating Permit application. August 30, 2010 – Application was deemed incomplete.
- November 4, 2010 – Ecology received the renewal Title IV Phase II Permit application.
- November 10, 2010 – Ecology received updates to the renewal Title V Air Operating Permit application. December 8, 2010 – Application deemed complete.

See also Sections 6.0 and 7.0.

3.0 INTRODUCTION

This document sets forth the legal and factual basis for the permit conditions in a Title V Air Operating Permit and a Title IV Phase II Acid Rain Permit issued by the State of Washington Department of Ecology for the Goldendale Generating Station (GGS) located in Goldendale, Washington. This document, called a “statement of basis,” does not contain enforceable permit conditions, only supplemental description and explanation. Enforceable permit conditions are contained in the combined Title V Air Operating Permit and a Title IV Phase II Acid Rain Permit itself.

4.0 SOURCE DESCRIPTION

The Goldendale Generating Station is a combined cycle natural gas-fired electrical generating facility. It consists of a combustion gas turbine-driven generator and a steam turbine-driven generator. The General Electric Frame 7FA combustion turbine and supplemental duct burners burn only natural gas; no backup fuel is allowed.

The exhaust heat from the combustion turbine flows to a heat recovery steam generator (HRSG) to produce steam. Steam is directed to the steam turbine, which turns a steam turbine generator. Steam exhausted by the steam turbine generator flows to a cooling tower and/or air-cooled condenser, is condensed, and returned to the HRSG.

The HRSG is equipped with a 323 million Btu/hr (LHV) duct burner that produces up to 40 MW. Since performance of the combustion turbine declines as ambient air temperature increases, the maximum duct burner contribution of 40 MW will occur when the ambient site temperature reaches its maximum (about 110 °F.) The GGS has a maximum annual average generating capacity in the range of 247,800 kilowatts (kW) to 248,700 kW. This generating capacity is measured as the maximum continuous electric generating capacity less minimum auxiliary load.

Selective catalytic reduction (SCR) is installed at the appropriate section of the HRSG to minimize NO_x emissions from the combustion turbine. An aqueous ammonia tank supplies the HRSG unit with ammonia for use with the SCR. An oxidation catalyst is also installed in the HRSG to oxidize carbon monoxide (CO) and, to a lesser extent, volatile organic compounds (VOCs), to carbon dioxide (CO₂).

Additional emission units include a 300 horsepower (hp) diesel engine, to start automatically should a demand for water for fire suppression occur simultaneously with a loss of electric power and a 536 hp (400 kW) diesel backup generator, to supply critical alternating current loads during emergency situations. Particulate matter emissions are also anticipated from two cooling towers. A site map and a source flow diagram of the source are included herein, as Figure 1 and Figure 2, respectively. Additionally, the source’s potential air emissions are listed in Table 1.

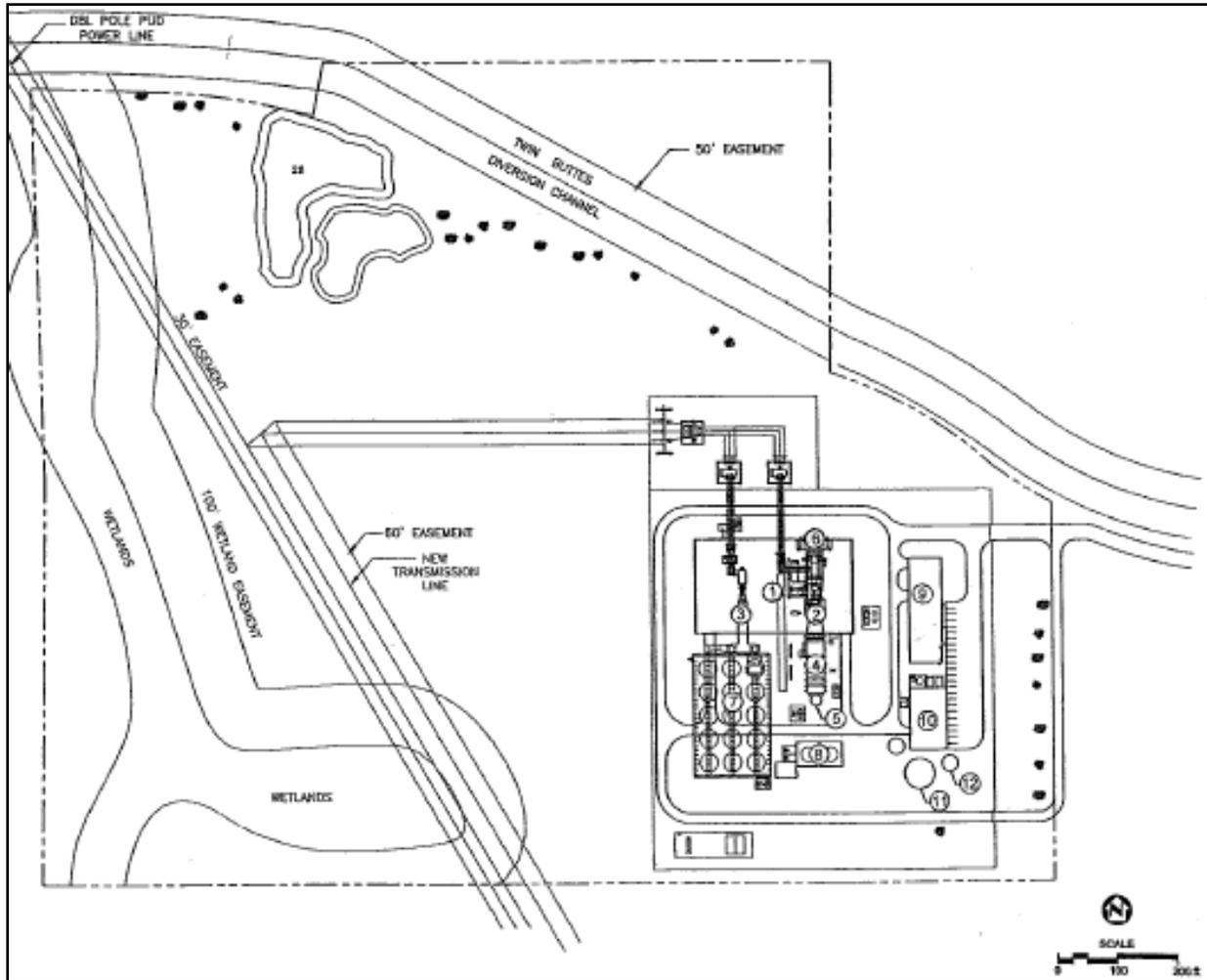


Figure 1: Site map of Goldendale Generating Station, Structures include: (1) turbine/generator building (2) gas combustion turbine (3) steam turbine (4) HRSG (5) exhaust stack (6) air inlet filter (7) air cool condensers (8) cooling tower (9) administration/maintenance building (10) pump house/water treatment building (11) service/fire water tank (12) demineralized water storage tank (adapted from AOP application received 5/26/05 from Geomatrix Consultants).

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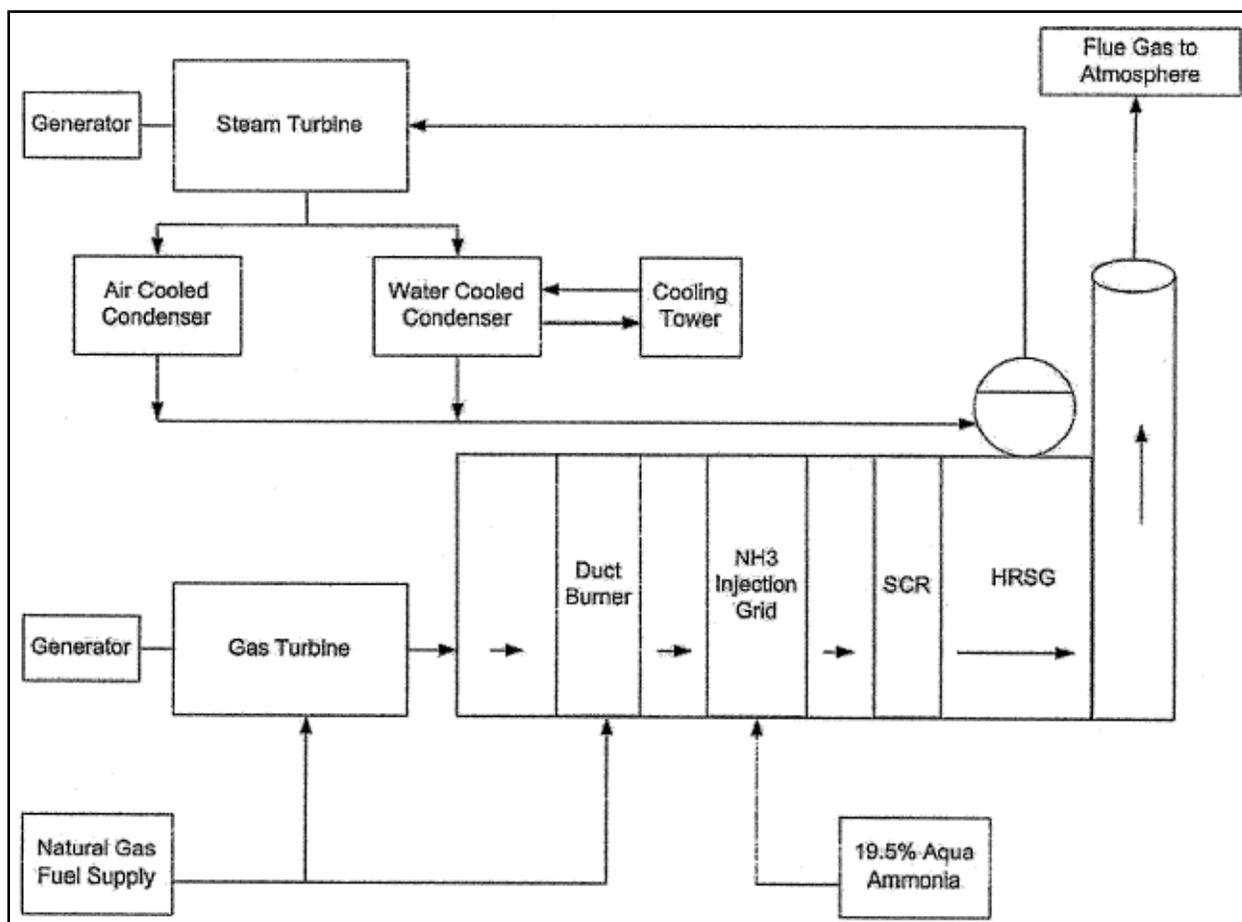


Figure 2: Goldendale Generating Station source flow diagram (adapted from AOP application received 5/26/05 from Geomatrix Consultants).

Table 1: Summary of Potential Emissions for Goldendale Generating Station

Pollutant	Combined Cycle Unit	Firewater Pump	Backup Generator	Cooling Tanks	Total	Units
TSP	91.9	0.2	0.3	6.5	98.9	ton/yr
PM ₁₀	91.9	0.2	0.3	6.5	98.9	ton/yr
PM _{2.5}	91.9	0.2	0.3	6.5	98.9	ton/yr
SO ₂	25.5	0.2	0.3		30	ton/yr
CO	82.27	0.5	0.9		83.7	ton/yr
NO _x	70.2	2.3	4.2		76.7	ton/yr
VOC	41.54	0.2	0.4		42.2	ton/yr
CO _{2e} *					1,827,191 (1,657,600)	ton/yr (MT/yr)
Toxic Air Pollutants						
Acetaldehyde	1.545	0.000403	0.000725		1.55	ton/yr
Ammonia	57.51				57.51	ton/yr
Benzene	0.1594	0.00049	0.000875		0.1608	ton/yr
Formaldehyde	1.977	0.00062	0.0011		1.978	ton/yr
PAH	0.006657	0.0000875	0.00015		0.007	ton/yr
Propylene Oxide	481.8				0.2409	ton/yr
Sulfuric Acid Mist	6.2				6.2	ton/yr

* Includes emissions of CO₂, CH₄, and N₂O, as calculated for all emission units.

Within the permit, the applicable requirements are broken down into tables, each containing a specific category or process, including:

Facility Wide Sources: Addresses source-wide emission sources, including all significant and insignificant emission units and fugitive emissions. Permit Table 6.1, includes applicable requirements that apply source-wide, including the units specifically addressed in Processes 1 through 5.

Process #1, Combustion Turbine.

Process #2, Duct Burner.

Process #3, Combined Cycle Unit: Addresses the requirements that apply to the collective combined cycle unit, made up of the gas combustion turbine, heat recovery steam generator, duct burner, selective catalytic reduction unit, and the steam turbine, which all share a single exhaust stack. The combined cycle unit has two sets of emission limits. Applicable requirements that apply at all times, during operation at base load (i.e., duct burner not in use), and during operation at peak load (i.e., duct burner in use), are specified in Permit Tables 6.4, 6.4a, and 6.4b, respectively.

Process #4, Backup Generator.

Process #5, Firewater Pump.

Insignificant emission units are listed in Section 11.0.

5.0 PERMIT CLARIFICATIONS

5.1 Combustion Turbine Startup Period Definitions

Initial startup of the combustion turbine results in increased emissions, potentially in excess of the permit emission limits. However, some of the emission limits do not apply during startup of the turbine. On June 14, 2011, Ecology received a request from GGS for clarification regarding the startup period definitions for the combustion turbine. The startup periods are defined in Table 2, consistent with materials submitted during NOC permit review.

Table 2: Combustion Turbine Startups, Categorized by Type and Duration, with Acceptable Durations for Startup Emissions

Type of Startup	Elapsed Time Since Last Shutdown (hrs)	Duration of Startup (min)	Duration of Startup Emissions (min)
Hot Start	< 8	70	40-60
Warm Start	48	110	90
Cold Start	> 71	219	180

5.2 Scheduling of Performance Testing

Performance testing, also referred to as source testing, emissions testing, and compliance testing, is required at least once every five years by some conditions of the permit. On July 8, 2011, Ecology received a request from GGS for clarification on the requirements scheduling performance testing. For testing at GGS, Ecology has agreed to apply the performance testing requirement on a calendar year basis. For example, the last performance test (at base-load) was conducted on August 24, 2006; accordingly, the next performance test (at peak-load) is required within calendar year 2011. The flexibility afforded by this schedule reflects the seasonality of base-load vs. peak-load operation, as well as power market fluctuations and periods of power transmission curtailment.

6.0 NEW SOURCE REVIEW HISTORY

In Washington State, new sources of air pollutants 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 WAC 173-400-700 through 750) and Nonattainment New Source Review (Title 40 Code of Federal Regulations Part 52.24 and WAC 173-400-800 through 860). These Federal programs apply to large sources with potential emissions equal or greater than specified thresholds. Additionally, 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).

Installation and operation of the Goldendale Generating Station was originally approved as the Goldendale Energy Center under Notice of Construction Order No. 01AQCR-2037, issued to Goldendale Energy Center, LLC on December 18, 2000.

Following issuance of this Order, it came to general attention that the sulfur content of the natural gas, used in much of Washington State including that used by Goldendale Generating Station, is greater than had been previously recognized. To remedy this situation, and minimize the potential for underestimating emissions, the permittee requested, and Ecology granted, a revision to reflect higher potential sulfur emissions. Notice of Construction Order No. 01AQCR-2037 First Revision was issued on August 22, 2003.

On March 22, 2004, Ecology received a request to revise conditions pertaining to generating capacity, monitoring of nitrogen content of the fuel, flow monitoring, addition of a shutdown exemption, operating load restrictions, and number of allowed startups. Ecology granted requested revisions. No change in potential emissions was authorized in Notice of Construction Order No. 01AQCR-2037 Second Revision, issued on January 13, 2005.

On November 12, 2010, Ecology received a request to revise the ammonia emission limits. Puget Sound Energy (PSE) stated that there is an increase in the need for partial load and swinging load operation of the Goldendale Generating Station, largely due to changes in power generation in the region, such as added wind power. They stated that the restrictive ammonia emission limits prevent them from operating the plant as needed to accommodate these transient load conditions. They demonstrated that the requested change is well within accepted Best Available Control Technology limits and that ambient impacts are below the Acceptable Source Impact Level. The change results in an increase in potential ammonia emissions of 23 tons per year. Ecology granted the ammonia slip increase from 3 ppm (1-hr average) to 5 ppm (3-hr average) in Notice of Construction Order No. 01AQCR-2037 Third Revision, issued on May 10, 2011.

On September 27, 2011, Ecology received a request for exemption from the NH₃ concentration emission limit, 5 ppm (3-hr average), during startup and shutdown periods. PSE stated that NH₃ slip is difficult to measure during startup due to elevated NO_x and O₂ concentrations, both of which are used in the measurement of NH₃ slip. The NO_x concentrations during these times can be at, or above, the span range of the analyzer used to monitor the pollutant. The elevated O₂ results in over correction of the NH₃ slip. During startup periods, NH₃ is injected at a minimum flow once the SCR catalyst has reached operating temperature. As such, the NH₃ injection provides limited NO_x emissions reductions during startup and is not present in quantities which are likely to result in significant NH₃ slip. PSE demonstrated that the requested change is in line with other GE Frame 7FA combine cycle turbines permitted within Washington. They also demonstrated that the exemption would not result in increased emissions. Ecology has proposed granting the exemption of the emission limit in Proposed Decision Regarding Notice of Construction Order No. 01AQCR-2037 Fourth Revision, issued on October 10, 2011.

7.0 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 criteria 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. Criteria pollutants include sulfur dioxide, nitrogen oxides, particulate matter, carbon monoxide, and volatile organic compounds.

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 December 1, 2010.

Goldendale Energy Center became a chapter 173-401 Operating Permit source upon commencement of operation on July 10, 2004. Their complete initial application was due on July 9, 2005. An incomplete application was received by Ecology on May 26, 2005. Additional information was received on July 6, 2005, and Ecology deemed the application complete on July 8, 2005. As a complete and timely permit application was received, Goldendale Energy Center, LLC retained their permission to operate while the permit was being processed.

A complete renewal application was due on January 4, 2011. An incomplete application was received by Ecology on July 2, 2010. Additional information was received by November 10, 2010, and Ecology deemed the application complete on December 8, 2010.

On February 1, 2011, Ecology requested supplemental application information from Goldendale Generating Station (GGS). Ecology asked that GGS demonstrate the applicability of chapter 173-441 Washington Administrative Code – Reporting of Emissions of Greenhouse Gases to the facility. Ecology also requested that GGS identify any associated state monitoring, reporting, recordkeeping, and verification protocols for GHG emissions reporting to be included in the renewal permit. The requested information was received by April 28, 2011.

See also “Timeline” in Section 2.0.

8.0 ACID RAIN PROGRAM HISTORY

The overall goal of the Acid Rain Program is to achieve significant environmental and public health benefits through reductions in emissions of sulfur dioxide (SO₂) and nitrogen oxides (NO_x), the primary causes of acid rain. To achieve this goal at the lowest cost to society, the program employs both traditional and innovative, market-based approaches for controlling air pollution. In addition, the program encourages energy efficiency and pollution prevention.

Specifically, Title IV of the 1990 Federal Clean Air Act Amendments set a goal of reducing annual SO₂ emissions by 10 million tons below 1980 levels. To achieve these reductions, the law required a two-phase tightening of the restrictions placed on fossil fuel-fired power plants.

Phase I began in 1995 and affected mostly coal-burning electric utility plants. Phase II, which began in the year 2000, tightened the annual emissions limits imposed on the large, higher emitting Phase I plants and also set restrictions on smaller, cleaner plants fired by coal, oil, and gas. The program affects existing utility units serving generators with an output capacity of greater than 25 megawatts and all new utility units.

The GGS is an “affected source,” subject to Phase II of the acid rain program, due to the presence of the natural gas fired combustion engine. The natural gas fired combustion engine and the auxiliary duct burner are one affected unit. The affected unit commenced operation on July 10, 2004. The affected unit commenced commercial operation on August 9, 2004. Initial monitor certification occurred during August 28 through 30, 2004. (The deadline for monitor certification was November 8, 2004.)

The Acid Rain Program introduces an allowance trading system that harnesses the incentives of the free market to reduce pollution. EPA holds an allowance auction annually. The auctions help to send the market an allowance price signal, as well as furnish utilities with an avenue for purchasing needed allowances. Acid rain permits require that each unit account hold a sufficient number of allowances to cover the unit's SO₂ emissions in each year, comply with the applicable NO_x limit, and monitor and report emissions. GGS has the potential-to-emit thirty (30) tons per year of SO₂ emissions; the source will be required to hold a maximum of thirty (30) SO₂ allowances.

Under the Acid Rain Program, each unit must continuously measure and record its emissions of SO₂, NO_x, and CO₂, as well as volumetric flow and opacity. In most cases, a continuous emission monitoring system (CEMS) must be used. There are provisions for initial equipment certification procedures, periodic quality assurance and quality control procedures, recordkeeping and reporting, and procedures for filling in missing data periods. Units report hourly emissions data to EPA on a quarterly basis. This data is then recorded in the Emissions Tracking System, which serves as a repository of emissions data for the utility industry. The emissions monitoring and reporting systems are critical to the program. They instill confidence in allowance transactions by certifying the existence and quantity of the commodity being traded and assure that NO_x averaging plans are working. Monitoring also ensures, through accurate accounting, that the SO₂ and NO_x emissions reduction goals are met.

Since GGS is not coal-fired, there are no applicable acid rain NO_x emission limits; a Phase II NO_x permit application and ozone monitoring are not required. GGS utilizes CEMS for NO_x, and O₂, to comply with the acid rain program. Instead of using a SO₂ CEMS, GGS provides other information satisfactory to EPA using the applicable procedures specified in 40 CFR Part 75 Appendix D, for estimating hourly SO₂ mass emissions. GGS's CO₂ mass emissions are determined using an O₂ monitor according to 40 CFR Part 75 Appendix F.

Opacity monitoring is not required at GGS and SO₂ monitoring will be met according to 40 CFR Part 75 Appendix D, so moisture measurement is not required. Additionally, because NO_x mass emission rates will be obtained according to 40 CFR Part 75 Appendix F, volume flow rate measurement is not required, under the Acid Rain Program.

Each source appoints one individual, the Designated Representative, to represent the owners and operators of the source in all matters relating to the holding and disposal of allowances for its units that are affected by the Clean Air Act. The Designated Representative is also responsible for all submissions pertaining to permits, compliance plans, emission monitoring reports, offset plans, compliance certification, and other necessary information. A source may appoint an Alternate Designated Representative to act on behalf of the Designated Representative.

Ecology received GGS's initial complete Title IV Phase II Permit Application and Certificate of Representation on February 28, 2001, and issued their initial Phase II Acid Rain Permit No. 02AQCR-4524, on July 15, 2002. The Permit underwent administrative amendments to update designated representatives, company name, and the new unit commence operation date, on June 11, 2003, November 25, 2003, September 2, 2004, and November 19, 2004 respectively.

Ecology received GGS's renewal complete Title IV Phase II Permit Application and Certificate of Representation on November 4, 2010.

Additional information on the Title IV permitting, monitoring, or reporting can be located on EPA's Clean Air Market's Division webpage (<http://www.epa.gov/airmarkets/forms/index.html#arp>).

Figure 3 displays Goldendale Generating Station's renewal Acid Rain Permit Application. Figure 4, displays GGS's most recent Certificate of Representation.

See also "Timeline" in Section 2.0.

GOLDDENDALE GENERATING STATION
Facility (Source) Name (from STEP 1)

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GOLDDENDALE GENERATING STATION
Facility (Source) Name (from STEP 1)

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Sulfur Dioxide Requirements, Cont'd.

STEP 3, Cont'd.

- (4) Allowances shall be held in, deducted from, or transferred among Allowance Tracking System accounts in accordance with the Acid Rain Program.
- (5) An allowance shall not be deducted in order to comply with the requirements under paragraph (1) of the sulfur dioxide requirements prior to the calendar year for which the allowance was allocated.
- (6) An allowance allocated by the Administrator under the Acid Rain Program is a limited authorization to emit sulfur dioxide in accordance with the Acid Rain Program. No provision of the Acid Rain Program, the Acid Rain permit application, the Acid Rain permit, or an exemption under 40 CFR 72.7 or 72.8 and no provision of law shall be construed to limit the authority of the United States to terminate or limit such authorization.
- (7) An allowance allocated by the Administrator under the Acid Rain Program does not constitute a property right.

Nitrogen Oxides Requirements

The owners and operators of the source and each affected unit at the source shall comply with the applicable Acid Rain emissions limitation for nitrogen oxides.

Excess Emissions Requirements

- (1) The designated representative of an affected source that has excess emissions in any calendar year shall submit a proposed offset plan, as required under 40 CFR part 77.
- (2) The owners and operators of an affected source that has excess emissions in any calendar year shall:
 - (i) Pay without demand the penalty required, and pay upon demand the interest on that penalty, as required by 40 CFR part 77; and
 - (ii) Comply with the terms of an approved offset plan, as required by 40 CFR part 77.

Recordkeeping and Reporting Requirements

(1) Unless otherwise provided, the owners and operators of the source and each affected unit at the source shall keep on site at the source each of the following documents for a period of 5 years from the date the document is created. This period may be extended for cause, at any time prior to the end of 5 years, in writing by the Administrator or permitting authority:

- (i) The certificate of representation for the designated representative for the source and each affected unit at the source and all documents that demonstrate the truth of the statements in the certificate of representation, in accordance with 40 CFR 72.24; provided that the certificate and documents shall be retained on site at the source beyond such 5-year period until such documents are superseded because of the submission of a new certificate of representation changing the designated representative;

EPA Form 7610-16 (Revised 12-2009)

GOLDDENDALE GENERATING STATION
Facility (Source) Name (from STEP 1)

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Effect on Other Authorities, Cont'd.

to applicable National Ambient Air Quality Standards or State Implementation Plans;

STEP 3, Cont'd.

- (2) Limiting the number of allowances a source can hold; *provided*, that the number of allowances held by the source shall not affect the source's obligation to comply with any other provisions of the Act;
- (3) Requiring a change of any kind in any State law regulating electric utility rates and charges, affecting any State law regarding such State regulation, or limiting such State regulation, including any prudence review requirements under such State law;
- (4) Modifying the Federal Power Act or affecting the authority of the Federal Energy Regulatory Commission under the Federal Power Act; or,
- (5) Interfering with or impairing any program for competitive bidding for power supply in a State in which such program is established.

Certification

I am authorized to make this submission on behalf of the owners and operators of the affected source or affected units for which the submission is made. I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine or imprisonment.

STEP 4
Read the certification statement, sign, and date.

Name L.E. ODOM DIRECTOR, THERMAL + WIND ASSETS
Signature *L.E. Odom* Date 10/04/2010

Recordkeeping and Reporting Requirements, Cont'd.

STEP 3, Cont'd.

- (ii) All emissions monitoring information, in accordance with 40 CFR part 75, provided that to the extent that 40 CFR part 75 provides for a 3-year period for recordkeeping, the 3-year period shall apply.
- (iii) Copies of all reports, compliance certifications, and other submissions and all records made or required under the Acid Rain Program; and,
- (iv) Copies of all documents used to complete an Acid Rain permit application and any other submission under the Acid Rain Program or to demonstrate compliance with the requirements of the Acid Rain Program.
- (2) The designated representative of an affected source and each affected unit at the source shall submit the reports and compliance certifications required under the Acid Rain Program, including those under 40 CFR part 72 subpart I and 40 CFR part 75.

Liability

- (1) Any person who knowingly violates any requirement or prohibition of the Acid Rain Program, a complete Acid Rain permit application, an Acid Rain permit, or an exemption under 40 CFR 72.7 or 72.8, including any requirement for the payment of any penalty owed to the United States, shall be subject to enforcement pursuant to section 113(c) of the Act.
- (2) Any person who knowingly makes a false, material statement in any record, submission, or report under the Acid Rain Program shall be subject to criminal enforcement pursuant to section 113(c) of the Act and 18 U.S.C. 1001.
- (3) No permit revision shall excuse any violation of the requirements of the Acid Rain Program that occurs prior to the date that the revision takes effect.
- (4) Each affected source and each affected unit shall meet the requirements of the Acid Rain Program.
- (5) Any provision of the Acid Rain Program that applies to an affected source (including a provision applicable to the designated representative of an affected source) shall also apply to the owners and operators of such source and of the affected units at the source.
- (6) Any provision of the Acid Rain Program that applies to an affected unit (including a provision applicable to the designated representative of an affected unit) shall also apply to the owners and operators of such unit.
- (7) Each violation of a provision of 40 CFR parts 72, 73, 74, 75, 76, 77, and 78 by an affected source or affected unit, or by an owner or operator or designated representative of such source or unit, shall be a separate violation of the Act.

Effect on Other Authorities

No provision of the Acid Rain Program, an Acid Rain permit application, an Acid Rain permit, or an exemption under 40 CFR 72.7 or 72.8 shall be construed as:

- (1) Except as expressly provided in title IV of the Act, exempting or excluding the owners and operators and, to the extent applicable, the designated representative of an affected source or affected unit from compliance with any other provision of the Act, including the provisions of title I of the Act relating

EPA Form 7610-16 (Revised 12-2009)

Figure 3 (cont.): GGS' renewal Acid Rain Permit Application, received 11/4/10.

Goldendale Generating Station		Certificate of Representation - Page 8
Facility (Source) Name (from Step 1)		
General		
I am authorized to make this submission on behalf of the owners and operators of the source or units for which the submission is made. I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine or imprisonment.		
Signature (Designated Representative)	Date 17 MARCH 2011	
Signature (Alternate Designated Representative)	Date 3/21/2011	
EPA Form 7610-1 (Revised 12-2008)		

Figure 4 (cont.): GGS' most recent Certificate of Representation, received 3/23/11.

9.0 FEDERAL REGULATIONS

9.1 New Source Performance Standards (NSPS).

GGs is subject to: Title 40 Code of Federal Regulations (CFR) Part 60 Subpart Da, *Standards of Performance for Electric Utility Steam Generating Units for Which Construction is Commenced After September 18, 1978*, and; Title 40 CFR Part 60 Subpart GG, *Standards of Performance for Stationary Gas Turbines*.

Title 40 CFR Part 60 Subpart Da, the boiler NSPS, establishes standards for particulate matter, SO₂, and NO_x for units combusting gaseous fuels which are capable of combusting more than 73 megawatts (250 million Btu/hr) heat input for which construction commenced after September 18, 1978. Since the duct burner at GGS has a firing capacity of 323 million Btu/hr (LHV) and is not covered by Subpart GG, it is subject to this standard.

Title 40 CFR Part 60 Subpart GG, the gas turbine NSPS, establishes NO_x and SO₂ emission standards for all new stationary gas turbines with a heat input at peak load greater than 10.7 gigajoules per hour based on the lower heating value of the fuel fired. The rated heat input of the combustion turbine at peak load including duct burner firing is approximately 2,012 gigajoules per hour and is therefore subject to this standard. Figure 5, displays GGS's approval to perform alternate testing and approval methods.

9.2 National Emission Standards for Hazardous Air Pollutants (NESHAP).

GGs is NOT subject to: Title 40 Code of Federal Regulations (CFR) Part 63 Subpart DDDDD, National Emission Standards for Hazardous Air Pollutants for Industrial/Commercial/Institutional Boilers and Process Heaters, or; Title 40 CFR Part 63 Subpart YYYYY, National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines.

Title 40 CFR Part 63 Subpart DDDDD, the boiler NESHAP, applies to industrial, commercial, or institutional boilers or process heaters located at, or are part of, a major source of hazardous air pollutants. GGS is not a major source of hazardous air pollutants (HAP).



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 REGION 10
 1200 Sixth Avenue
 Seattle, Washington 98101



Reply To
 Attn Of: OAQ-107

June 16, 2004

Steve Royall
 Plant Manager
 Goldendale Energy Center
 P.O. Box 190
 Goldendale, Washington 98620

Re: NSPS Subpart GG Alternative Monitoring and Testing Approval

Dear Mr. Royale:

The purpose of this letter is to respond to your May 25, 2004, request that the United States Environmental Protection Agency (EPA) approve alternative monitoring and testing methods for a combustion turbine recently installed at Goldendale Energy Center in Goldendale, Washington. The turbine is subject to the requirements of NSPS Subpart GG - Standards of Performance for Stationary Gas Turbines. As described below, EPA approves your request.

Request 1: Waiver from Nitrogen Monitoring - Pipeline Quality Natural Gas

Under the provisions for 40 C.F.R. Section 60.334(b)(2), owners and operators of combustion turbines who do not have intermediate bulk storage for the fuel fired in their turbines are required to conduct daily monitoring to determine the sulfur and nitrogen content of the fuel combusted. Under the terms of the August 14, 1987 custom fuel monitoring policy issued by EPA Headquarters, the nitrogen monitoring requirement for pipeline quality natural gas-fired turbines can be waived because this fuel does not contain fuel-bound nitrogen and any free nitrogen that it may contain does not contribute appreciably to the formation of nitrogen oxides (NO_x) emissions. Based upon the precedent set in the August 1987 custom fuel monitoring policy, the requirement to monitor the nitrogen content of pipeline quality natural gas is waived.

Request 2: Custom Fuel (Sulfur) Monitoring Schedule - Pipeline Quality Natural Gas

EPA's August 1987 custom fuel monitoring policy also provides details regarding a procedure that owners and operators of natural gas-fired turbines can follow in order to obtain approval to reduce their sulfur analysis frequency from a daily to a semiannual basis. Under this policy, owners and operators of affected facilities can obtain approval for a semiannual monitoring frequency by collecting and analyzing samples under the following schedule:

1. Samples must initially be collected and analyzed twice a month for six months. If six months of bi-monthly sampling and analysis indicate that sulfur concentrations are well below the applicable standard with low variability, the sampling frequency can be reduced to a quarterly basis.
2. If six quarters of quarterly sampling and analysis indicate that sulfur concentrations are well below the applicable standard with low variability, the sampling frequency can be reduced to a semiannual basis.
3. If any analyses indicate noncompliance with the applicable sulfur limit of 0.8 weight percent in 40 C.F.R. Section 60.333(b), samples must be collected and analyzed on a weekly basis while the custom fuel monitoring schedule is re-examined.
4. If there is a substantial change in fuel quality, samples must be collected and analyzed on a weekly basis while the custom fuel monitoring schedule is re-examined.

The schedule you have proposed is consistent with, if not identical to, EPA's August 1987 custom fuel monitoring policy. The custom fuel monitoring schedule that you have proposed is approved.

Request 3: Waiver from Multiple Load Testing

Under the provisions of 40 C.F.R. Section 60.335(c)(2), owners and operators of combustion turbines subject to Subpart GG must conduct NO_x performance testing at four different loads across the unit operating range. One reason for conducting a multiple load test on a combustion turbine is to determine the water injection rate needed to maintain NO_x compliance across the unit's normal operating range. Since it is difficult to predict which operating load will represent "worst case" conditions for a combustion turbine, conducting a multiple load test is often necessary in order to provide an adequate level of compliance assurance even for turbines that do not use water injection for NO_x control. For combustion turbines equipped with NO_x CEMS, however, the monitors will provide credible evidence regarding the unit's compliance status on a continuous basis following the initial test.

Achieving and maintaining compliance with Washington minor NSR BACT NO_x limits is far more challenging than demonstrating initial compliance with the considerably less stringent Subpart GG emission limit. Depending on the type of turbine, the applicable NO_x standard in Subpart GG is either 75 parts per million (ppm) or 150 ppm, and limits contained in Washington minor NSR permits being issued today are often less than 10 ppm. The combustion turbine at Goldendale Energy Center is limited to 2 ppm. Compliance with Subpart GG limits will generally be a concern only in cases where a source is in violation of the corresponding minor NSR BACT limit.

The level of compliance assurance provided in this case is sufficient to justify approval of a request that initial performance testing be allowed at full operating load. Your proposal to conduct performance testing at full load is approved.

Request 4: Reporting NO_x Emissions Data in ISO Conditions

The testing provision in 40 C.F.R. Section 60.335(c)(1) requires that performance test results be corrected to International Standards Organization (ISO) standard day conditions. CEMS results must also be expressed on this same basis in order to conclusively identify periods of excess emissions. As discussed previously, NO_x limits for combustion turbines subject to Washington minor NSR BACT are considerably more stringent than those in Subpart GG. Typically these minor NSR BACT limits are not expressed on an ISO-corrected basis.

Again, the level of compliance assurance provided in this case is sufficient to justify waiving requirement to report NO_x performance test results on an ISO-corrected basis. The requirement to report NO_x performance test results on an ISO-corrected basis is waived. Goldendale Energy Center, however, is expected to keep records of the data (ambient temperature, ambient humidity, and combustor inlet pressure) needed to make the correction.

Please direct your questions regarding this determination to Dan Meyer of my staff at 206.553.4150.

Sincerely,

Madonna Nawoy Acting
 Jeff KenKnight, Manager
 Federal and Delegated Air Programs Unit

cc: ✓ Lynnette Haller, Ecology
 Eric Hansen, MFG

Figure 5: Subpart GG alternate testing and approval methods.

Title 40 CFR Part 63 Subpart ZZZZ, the Reciprocating Internal Combustion Engines (RICE) NESHAP, applies to stationary RICE located at major and area sources of HAP emissions. The RICE NESHAP establishes national emission limitations and operating limitations for HAP emitted from stationary RICE. GGS is an area source of HAP, and the backup generator and fire pump engine each classified as RICE; therefore, the units are subject to this standard. Each of the units is designated as an emergency RICE, and thus subject only to operating limitations.

Title 40 CFR Part 63 Subpart YYYY, the combustion turbine NESHAP, establishes national emission limitations and operating limitations for HAP emissions from stationary combustion turbines located at major sources of HAP emissions, and requirements to demonstrate initial and continuous compliance with the emission and operating limitations. The turbine NESHAP applies to stationary combustion turbines located at a major source of HAP emissions. GGS is not a major source of HAP.

10.0 GREENHOUSE GAS REPORTING

10.1 Federal Greenhouse Gas Reporting.

On October 30, 2009, EPA published a rule for the mandatory reporting of greenhouse gases (GHG) (also referred to as 40 CFR part 98) from large GHG emissions sources. The rule applies to certain facilities, including those which emit 25,000 MT CO₂e or more per year in combined emissions from all stationary fuel combustion sources. GGS's potential GHG emissions are approximately 1,657,600 MT of CO₂e per year. Therefore, GGS may be subject to the Mandatory Greenhouse Gas Reporting rule.

Regardless of applicability of the Mandatory Greenhouse Gas Reporting rule to GGS, Title 40 CFR Part 98, Federal Mandatory Reporting of Greenhouse Gases, is not an AOP applicable requirement. According to EPA guidance as published in the Federal Register (56288 FR 74:209, Friday, October 30, 2009), the requirements imposed by this rule are not applicable requirements under the Title V operating permit program. Therefore, requirements of the rule have not been included in this permit.

10.2 State Greenhouse Gas Reporting.

On December 1, 2010, Ecology promulgated Chapter 173-441 WAC – Reporting of Emissions of Greenhouse Gases. The WAC incorporates by reference certain, but not all, calculation methods and other requirements from 40 CFR Part 98, the federal Mandatory Greenhouse Gas Reporting rule. The WAC applies to any facility that emits 10,000 metric tons of CO₂e or more per calendar year in total GHG emissions, including biogenic CO₂, from all applicable source categories listed in WAC 173-441-120.

GGS may be subject to the requirements of chapter 173-441 WAC if actual GHG emissions are greater than 10,000 MT of CO₂e per year. Potential GHG emissions at GGS are 1,657,600 MT of CO₂e per year. As owner and operator of the affected facility, GGS is required to demonstrate compliance with all applicable provisions of chapter 173-441 WAC.

11.0 COMPLIANCE ASSURANCE MONITORING (CAM).

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:

1. The unit is located at a Title V Air Operating Permit source
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.
3. The unit uses a control device to achieve compliance with any such emission limitation or standard; and
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.

The combustion turbine is the only emission unit at GGS that meets all four of the listed criteria for CAM applicability. NO_x and CO are subject to emission limitations, are controlled by control devices, and have potential pre-control device emissions greater than 100 tons per year. However, 40 CFR 64.2(b)(1)(vi), specifies that CAM requirements are not applicable to emission limitation or standard for which an AOP specifies a continuous compliance determination method (ex. CEMS). The AOP specifies that both NO_x and CO be monitored using a CEMS. Therefore, CAM does not apply at GGS.

12.0 INSIGNIFICANT EMISSION UNITS AND ACTIVITIES

Emissions from an oil/water separator, fuel oil (#2 diesel) piping and natural gas piping are insignificant on the basis that these activities generate only fugitive emissions. [WAC 173-401-530(1)(d), 9/16/02] *Note: WAC 173-400-030(38), defines fugitive emissions as, "emissions which could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening."*

The cooling tower, the demineralized water storage tank, the service/fire water tank, and waste oil drums are categorically exempt insignificant emission units [WAC 173-401-532(4), (42), (121), 9/16/02]. Finally, 9,000 gallon 19.5 percent aqueous ammonia storage tank is insignificant on the basis of size. [WAC 173-401-533(2)(s), 9/16/02]

13.0 GAPFILLING

Section 6 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 6, 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 specified periodic MRR while gapfilling was used for the remainder. The source of the MRR is identified in brackets when it does not come specifically from the identified applicable requirement(s). Those that reference WAC 173-401-615(1) were gapfilled. Table 3 lists a brief explanation of the basis for each instance of gapfilling.

Table 3: Identification and Basis of "Gapfilled" Items

Applicable Requirement(s)	Gapfilling Basis
6.3.1, 6.3.2, 6.3.3, 6.4a.1, 6.4a.2, 6.4a.3, 6.4a.4, 6.4a.5, 6.4b.1, 6.4b.2, 6.4b.3, 6.4b.4, 6.4b.5	MRR required for other similar applicable requirement(s) should sufficiently demonstrate compliance with the specified applicable requirement.
6.1.8, 6.1.9, 6.1.10, 6.1.13, 6.1.14, 6.1.21, 6.2.2	This source has not had a history of violating these "nuisance" requirements. MRR required for other similar applicable requirement(s) should sufficiently demonstrate compliance with the specified applicable requirement.
6.1.4, 6.1.5, 6.1.6	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 is determined to be appropriate. Additionally, action is required when visible emissions are observed at times other than the monthly survey.
6.1.17, 6.1.20	Development and implementation of these documents fulfills the applicable requirement. Periodic review/inspections will aid in assuring that the documents contents are being followed.

14.0 STREAMLINING

Streamlining is where one or more applicable requirement is recognized as being less stringent than another applicable requirement. Upon a satisfactory showing that one applicable requirement is more stringent, it may formally subsume the less stringent applicable requirement(s). GGS's AOP does not include any streamlining.

15.0 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.

16.0 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. 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(3), 8/20/93, 3/11/11 (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 SIP and is federally enforceable) and in the 3/11/11 version of WAC 173-400-107. The (S) after 3/11/11 means that the 3/11/11 version of WAC 173-400-107 is State-only enforceable.

17.0 OPERATIONAL FLEXIBILITY

The permittee did not request or specify any alternative operating scenarios. However, the combined cycle unit has two sets of emission limits; one set each of emission units when operating at base-load and at peak-load. Operation at base-load and peak-load have been identified as alternate operating scenarios. The applicable requirements in Table 6.4a apply when the combined cycle unit is operating at base-load (i.e., duct burner(s) NOT in operation). The applicable requirements in Table 6.4b apply when the combined cycle unit is operating at peak-load (i.e., duct burner(s) in operation).

Additionally, 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. For example, 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.

18.0 OTHER PERMITTING ISSUES

18.1 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)

19.0 COMPLIANCE SUMMARY

19.1 Compliance Status .

The most recent Full Compliance Evaluation (FCE) was completed for GGS on November 2, 2010. The FCE showed that as of September 30, 2010, GGS was in compliance with their existing AOP. Documents related to this and other FCEs completed for GGS are available for public viewing from the Department of Ecology, Central Regional Office.