NORTHWEST
AIR POLLUTION AUTHORITY

302 Pine Street, #207
Mount Vernon, WA 98273-3852
Tel: 206-428-1617 / Fax: 206-428-1620

Representing Island, Skagit and Whatcom Counties

April 14, 1993

Rev. 1 April 19, 1993
Rev. 2 May 1, 1995

Rob Hoyt
Lone Star Energy
915 Cornwall Ave.
Bellingham, WA 98225

ORDER OF APPROVAL TO CONSTRUCT #428

Dear Mr. Hoyt

On March 5, 1993 Lone Star Energy submitted a "Notice of Construction and Application for Approval" to construct three 470,000 gallon fixed-roof diesel fuel storage tanks.

The information submitted was reviewed to determine that all known, available, and reasonable air pollution control measures would be employed. The project was reviewed subject to Northwest Air Pollution Authority (NWAPA) Regulation Section 302, Washington Administrative Code (WAC) 173-400-110, and WAC 173-460. A Determination of Non Significance was issued for the Encogen Cogeneration Project by the City of Bellingham on February 8, 1991.

You are hereby authorized to construct and operate the aforementioned equipment subject to the following conditions:

1. The tanks shall be constructed and maintained in accordance with the information submitted with the Notice of Construction Application.

2. The exterior color of the tanks shall be no darker than light gray.

3. Only diesel fuel may be stored in the tanks.

4. In no case shall the True Vapor Pressure of product stored exceed 5.2 kPa (0.75 psia).

Final approval to operate shall be conditioned upon the facility meeting the requirements described above and conditions set forth in the applicable air pollution control regulations, when in actual operation.

Please call Valerie Lagen if you have any questions about the approval of this project.

Sincerely,

Terryl L. Nyman
Air Pollution Control Officer

Reviewed: Valerie H. Lagen, P. E.

Revision 1: Revised tank color
Revision 2: Revised size of tank from working volume to total tank capacity.

WASHINGTON DEPARTMENT OF ECOLOGY
MAILSTOP PV-11
OLYMPIA, WASHINGTON 98504

IN THE MATTER OF:	]	**NO. PSD 91-02 AMENDMENT 2**
	]	**FINAL APPROVAL OF**
Encogen Northwest, L. P.	]	**PSD APPLICATION**
Encogen Northwest Cogeneration Project	]	
Bellingham, Washington	]	

Pursuant to the U.S. Environmental Protection Agency (EPA) regulations for the Prevention of Significant Deterioration (PSD) set forth in Title 40, Code of the Federal Regulations, Part 52 and based upon the complete Prevention of Significant Deterioration (PSD) Amendment application submitted by EEX Power Systems (EEX), operator of the Encogen Northwest Cogeneration Plant (Encogen), and the technical analysis performed by the Department of Ecology (Ecology), Ecology now finds the following:

FINDINGS

1. EEX Power Systems (EEX) operates Encogen, which is owned by Encogen Northwest, L. P. (ENWLP). The plant is located adjacent to the Georgia Pacific pulp and paper mill in Bellingham, Washington. The plant was constructed and formerly operated by Enserch Development Corporation. Enserch Development Corporation was the original PSD permittee.

2. Encogen consists of three combustion gas turbine/heat recovery steam generator trains and a single steam turbine generator. It is a combustion turbine based cogeneration facility, supplying electric power to Puget Sound Energy and process steam to Georgia Pacific Corporation. Each gas turbine generator unit is designed to generate approximately 41 megawatts (Mw) of electrical power, while consuming 440 million Btu/hr of natural gas. A Final Prevention of Significant Deterioration Approval allowing construction of the project and operation **only** on natural gas was issued on September 26, 1991. An amendment to fuel the source with oil during times of natural gas curtailment was approved on December 6,

1993. On March 16, 1998, EEX submitted an application for a minor revision to this permit. The application for this revision was found to be complete on April 20, 1998. The application requested an increase in the daily permitted nitrogen oxide (NO_x) emissions to account for equipment operational changes that accompany cold weather. Permitted annual NO_x emissions will not be changed in the proposed revision. In addition, the application requested several other administrative revisions intended to improve reporting, simplify the permit, and improve its consistency with PSD permitting guidance. None of these administrative changes increase permitted emissions.

3. Encogen qualifies as a major source of air pollutants because it is listed and has the potential to emit more than 100 tons per year of NO_x and carbon monoxide (CO). It is located in an area designated Class II for the purposes of PSD evaluation, under 40 CFR 52.21.

4. The site of the proposed project is within an area that is in attainment with regard to all pollutants regulated by the national ambient air quality standards.

5. The emissions of NO_x, CO, sulfur dioxide (SO_2), particulate matter (PM), and particulate matter finer than ten microns in diameter (PM_{10}) from the proposed cogeneration project are subject to PSD review.

6. The emissions of all other air pollutants from the proposed new source are subject to new source review by the Northwest Air Pollution Authority (NWAPA).

7. Best Available Control Technology (BACT) will be used for the control of all air pollutants that will be emitted by the proposed project.

8. The cogeneration project would have the potential to generate up to 175 tons per year of NO_x.

9. The cogeneration project would have the potential to generate up to 50 tons per year of SO_2.

10. The cogeneration project would have the potential to generate up to 131 tons per year of CO.

11. The cogeneration project would have the potential to generate up to 56 tons per year of particulate matter, all of which would be finer than 10 microns in diameter (PM_{10}).

12. The project will have no significant adverse impact on air quality.

13. No noticeable effect on industrial, commercial, or residential growth in the Bellingham area is anticipated due to the project.

14. Visibility will not be impaired in any Class I area due to the proposed emissions. Screening analyses showed no significant degradation of sky to terrain contrast or visible plume against the sky or terrain resulting from the project.

15. Ecology finds that all requirements for PSD are satisfied. Approval of the PSD application and notice of construction are granted subject to the following conditions:

APPROVAL CONDITIONS

1. The combustion turbine/heat recovery steam generator trains shall be fueled only by pipeline quality natural gas except for periods when the supply of natural gas has been curtailed or for limited testing. During periods of natural gas curtailment and during limited test periods the combustion turbine/heat recovery steam generator trains may be fueled by "on-road specification diesel fuel" (referred to as "oil" throughout the remainder of this Approval). The oil may contain no more than 0.05 percent sulfur by weight, as specified in 40 CFR § 80.29, as amended through July 1, 1992. No more than 300,000 gallons of oil may be fired by the combustion turbine/heat recovery steam generator trains in any calendar year for the purposes of testing. No more than 10,600,000 gallons of oil may be fired by the combustion turbine/heat recovery steam generator trains in any calendar year for the purposes of testing or operation during periods of natural gas curtailment. Encogen shall report any oil fired operations of the combustion turbine/heat recovery steam generator trains to NWAPA in accordance with the reporting requirements in Condition 9.

2. NO_x emissions from each exhaust stack of the cogeneration project shall not exceed 7.0 parts per million on a dry volume basis (ppmdv) corrected to 15 percent oxygen and ISO (ISO

standard day conditions means 288 degrees Kelvin, 60 percent relative humidity and 101.3 kilo Pascals pressure) conditions on a daily average when the unit is fired on natural gas. NO_x emissions from each exhaust stack of the cogeneration project shall not exceed 11.0 ppmdv corrected to 15 percent oxygen and ISO conditions on a daily average when the unit is fired on oil. Initial compliance shall be determined by EPA Reference Method 20. NO_x emissions from each exhaust stack shall be measured and recorded by a continuous emission monitoring system (CEMS) which meets the requirements of Condition 8. NO_x emissions from the cogeneration project shall not exceed 1,000 pounds per day when the unit is fired on natural gas or 1,605 pounds per day when the unit is fired on oil. Total NO_x emissions in any consecutive twelve months shall not exceed 175 tons. During startup or shutdown conditions, NO_x emissions in excess of the above limits shall be considered unavoidable provided the source reports the exceedence in accordance with Approval Condition 10., below.

3. SO_2 emissions from each exhaust stack of the cogeneration project shall not exceed 9.0 ppmdv corrected to 15 percent oxygen and ISO conditions on a daily average when the unit is fired on oil. Initial compliance shall be determined by EPA Reference Method 6, or an equivalent method approved in advance by Ecology. SO_2 emissions from the cogeneration project shall not exceed 100 pounds per day when the unit is fired on natural gas or 1,584 pounds per day when the unit is fired on oil. Upon request from NWAPA, ENWLP shall provide data demonstrating compliance for this condition for any period(s) that the combustion turbine/heat recovery steam generator trains are fueled by oil. Such data shall be in a format agreed to in advance by NWAPA. The data shall include at a minimum: copies of receipts from the oil supplier showing the sulfur content of the oil, the quantity of oil fired per day, and calculations showing the maximum SO_2 concentration and emission rates in units of the emission limitations in this condition.

4. CO emissions from each exhaust stack of the cogeneration project shall not exceed 10.0 ppmdv corrected to 15 percent oxygen and ISO on an hourly average as measured by EPA Reference Method 10. CO emissions from the project shall not exceed 718 pounds per day. During startup or shutdown conditions, CO emissions in excess of the above limits shall be considered unavoidable provided the source reports the exceedence in accordance with Approval Condition 10., below.

5. PM_{10} emissions (particulate finer than 10 micrometers in diameter) from each exhaust stack of the cogeneration project shall not exceed 60 pounds per day when the unit is fired on natural gas or 408 pounds per day when the unit is fired on oil. Initial compliance shall be determined by EPA Reference Methods 5, 201 or an equivalent method agreed to in advance by Ecology or NWAPA. PM_{10} emissions from the cogeneration project shall not exceed 180 pounds per day when the unit is fired on natural gas or 1,224 pounds per day when the unit is fired on oil.

6. Within 60 days after achieving maximum production, but not later than 180 days after start-up, ENWLP shall conduct performance tests for NO_x, SO_2, CO, and PM_{10} on each combustion turbine, to be performed by an independent testing firm. A test plan shall be submitted for Ecology's approval at least 30 days prior to the testing.

7. Sampling ports and platforms shall be provided for each affected source, after the final pollution control device. The ports shall meet the requirements of 40 CFR, Part 60, Appendix A Method 20. Adequate permanent and safe access to the test ports shall be provided. Other arrangements may be acceptable if approved by Ecology or NWAPA prior to installation.

8. Any continuous emission monitoring system (CEMS) used by ENWLP to measure NO_x and O_2 emissions shall, at a minimum, conform with EPA Title 40 Code of the Federal Regulations, Part 60, Appendix B Performance Specifications. In addition, before initial start-up a continuous emission monitoring quality control plan conforming with 40 CFR 60 Appendix F and acceptable to Ecology or NWAPA shall be submitted and Ecology or NWAPA may require the plan to be periodically updated.

9. CEMS and process data shall be reported in written form to NWAPA at least monthly (unless a different testing and reporting schedule has been approved by Ecology or NWAPA) within thirty days of the end of each calendar month and in a format approved by Ecology or NWAPA which shall include but not be limited to the following:

   9.1. Quantity of oil burned for testing, total quantity of oil burned, and sulfur content of all oil purchased since the last report.

9.2. For each stack, the daily average NO_x concentration, in ppmdv corrected to 15% ISO conditions.

9.3 For the cogeneration project, total mass emissions of NO_x on daily (pounds per day) and twelve month moving total (tons per year) bases.

9.4. The duration and nature of any monitor down-time excluding zero and span checks.

9.5. Results of any monitor audits or accuracy checks.

9.6. Results of any stack tests.

9.7. The above data shall be retained at the Encogen site for a period of five years.

10. Each occurrence of monitored emissions in excess of the standard shall be the reported to NWAPA. Excess emissions which represent a potential threat to human health or safety or which ENWLP believes to be unavoidable shall be reported as soon as possible. Other excess emissions shall be reported as part of the routine reporting described in Approval Condition 9., above. Each excess emissions report shall include the following:

    10.1. The time of the occurrence.

    10.2. Magnitude of the emission or process parameters excess.

    10.3. The duration of the excess.

    10.4. The probable cause.

    10.5. Corrective actions taken or planned.

    10.6. Any other agency contacted besides NWAPA.

11. Operating and maintenance manuals for all equipment that has the potential to affect emissions to the atmosphere shall be developed and followed. Copies of the manuals shall be available to Ecology or NWAPA. Emissions that result from a failure to follow the requirements of the manuals may be considered proof that the equipment was not properly operated and maintained.

12. Operation of the emitting equipment must be conducted in compliance with all data and specifications submitted as part of the PSD application unless otherwise approved by Ecology.

13. This approval shall become void if construction of the project is not commenced within eighteen (18) months after receipt of final approval, or if construction or operation of the facility is discontinued for a period of eighteen (18) months.

14. Any activity which is undertaken by ENWLP or others, in a manner which is inconsistent with the intended operation of this facility as described in the "Findings" section or with the "Approval Conditions" of this PSD permit, may be subject to enforcement under applicable regulations. Nothing in this PSD permit shall be construed so as to relieve ENW of its obligations under any state, local, or federal laws or regulations.

15. ENWLP shall notify Ecology in writing at least thirty days prior to initial start-up of the plant.

16. Access to the source by the EPA, Ecology or NWAPA shall be permitted upon request for the purpose of compliance assurance inspections. Failure to allow access is grounds for revocation of this determination of approval.

Reviewed by:

Bernard Brady 7/8/98

Bernard Brady, P.E. Date
Engineering and Technical Services
Washington Department of Ecology

BERNARD J. BRADY
STATE OF WASHINGTON
26670
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES 3-20-99

Approved by:

7/20/98

Stuart Clark Date
Acting Manager, Air Quality Program
Washington Department of Ecology

7-23-98

Anita Frankel Date
Director of the Office of Air Quality
United States Environmental Protection Agency, Region X

NO. PSD 91-02 AMENDMENT 2

NORTHWEST
AIR POLLUTION AUTHORITY

302 Pine Street, #207
Mount Vernon, WA 98273-3852
Tel: 206-428-1617 / Fax: 206-428-1620

Representing Island, Skagit and Whatcom Counties

January 31, 1995

Rob Hoyt
Lone Star Energy
915 Cornwall Ave.
Bellingham, WA 98225

EXCESS EMISSION SEMIANNUAL REPORTING REQUIREMENT

Dear Mr. Hoyt:

This letter is in response to your January 26, 1995 letter requesting a waiver from the semiannual reporting requirements for the Encogen Northwest Cogeneration Plant in Bellingham, Washington.

The reporting requirements contained in the New Source Performance Standards (NSPS) for stationary gas turbines, 40 CFR § 60, subpart GG require semiannual submittal of excess emission reports. These reports must include the magnitude of the excess emission, date and time of each occurrence, nature and cause of any malfunction, corrective action taken or preventative measures adopted. In addition, each period during which the continuous emission monitoring system was inoperative shall be reported. Both the NWAPA Order of Approval to Construct Number 340 and the Washington Department of Ecology (WDOE) Prevention of Significant Deterioration (PSD) PSD-91-02 require excess emission reports with more detail than that required by the NSPS. In addition, the NWAPA and WDOE reports must be submitted on a monthly basis no later than 30 days following the end of the calendar month.

The NSPS for stationary gas turbines, 40 CFR § 60, subpart GG require sulfur and nitrogen monitoring of the fuel being fired in the turbines. In a letter from Region 10 of the EPA dated March 10, 1993, Encogen was granted a waiver from the requirement to monitor sulfur in the fuel gas being fired in the turbines as long as Northwest Pipeline (NWP) conducted adequate monitoring. Encogen was responsible for ensuring that EPA Regional Office receive not less than 6 quarterly reports from NWP demonstrating satisfactory monitoring of the fuel gas sulfur content. This requirement has been met and Encogen is no longer required to submit quarterly sulfur fuel monitoring reports subject to the conditions of the original waiver. The March 10 letter also granted a waiver to Encogen from the requirement to monitor nitrogen in the fuel.

The NSPS for stationary gas turbines, 40 CFR § 60, subpart GG requires monitoring of the water-to-fuel ratio, steam and ammonia injection rates and the turbine load. Encogen monitors each of these parameters continuously, and reports daily averages of ammonia slip, NO_X emissions, hours of operation, and fuel consumption. These parameters are reported on a monthly basis and will serve as a substitute for semiannual reporting of monthly averages required by the NSPS. Therefore, the requirement for these monthly reports is waived.

The Northwest Air Pollution Authority (NWAPA) received delegation of the NSPS program in which we are allowed to approve minor changes in testing and monitoring methods, procedures and

equipment. These changes must be site specific, cannot affect the stringency of the test method or procedure, and must have no national significance. I believe your request to be exempt from the semiannual reporting requirements as described above meet this criteria, therefore your request is granted.

If you have questions regarding this matter, please call me at (360) 428-1617.

Sincerely,

Valerie Lagen
Air Quality Engineer

cc: Tim Curley, Enserch
John Keenan, EPA

Source Testing Correspondence

JR file ENCOGEN

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

MAR 10 1993

Reply To
Attn Of: AT-082

Rob Hoyt
Lone Star Energy
Plant Operations, Inc.
915 Cornwall Avenue
Bellingham, Washington 98225

Re: New Source Performance Standards, Subpart GG
Custom Fuel Monitoring Schedule

Dear Mr. Hoyt:

This letter is in response to your January 29, 1993 letter requesting a custom fuel monitoring schedule for the stationary gas turbines located at the Encogen Northwest Cogeneration Plant in Bellingham, Washington.

The New Source Performance Standards (NSPS) for stationary gas turbines, 40 C.F.R. Part 60, Subpart GG requires sulfur and nitrogen monitoring of the fuel being fired in the turbines. With respect to the sulfur monitoring, a custom fuel monitoring schedule can be approved following review of performance test results as required by 40 C.F.R. §§ 60.8 and 60.335. A copy of performance test results for each turbine, upon completion, shall be submitted to the EPA Regional Office at the address listed above, Attention: Olga Loera, AT-082. The sulfur fuel monitoring schedule shall be as follows: The sulfur content of the fuel shall be determined by the methods specified in 40 C.F.R. § 60.335(d) and is to be conducted quarterly for a period not less than six quarters.

I understand that natural gas is being supplied to Encogen Northwest Cogeneration Plant (Encogen) by Northwest Pipeline Corporation (NWP) which has a legal tariff to maintain gas sulfur content at 4 ppm or less. NWP is currently monitoring sulfur content in the fuel gas at each one of points of entry to the United States from Canada to satisfy the New Source Performance Standards for stationary gas turbines. It is the Environmental Protection Agency (EPA) Region 10's position that since sulfur fuel gas monitoring is currently being conducted by NWP, additional monitoring of sulfur in the fuel gas is not necessary by Encogen. However, it shall be Lone Star Energy's responsibility to ensure that a copy of NWP quarterly sulfur monitoring results are submitted to the EPA Regional Office.

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northwest Clean Air agency

1600 South Second Street
Mount Vernon, WA 98273-5202
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tel 800.622.4627
fax 360.428.1620
www.nwcleanair.org

Original issuance: January 06, 2006

Revision a: June 13, 2008

Northwest Air Pollution Authority (NWAPA) hereby issues
Order of Approval to Construct (OAC) #951a

Project Summary: Install and operate a 92.7 MMBtu per hour, Nebraska model NOS-2A/S-55, natural gas-fired, auxiliary boiler. The boiler was used to supply up to 70,000 lbs per hour of steam to the adjacent Georgia Pacific plant, which is no longer in operation.

APPLICANT	OWNER
Encogen Generating Station Puget Sound Energy (PSE) 915 Cornwall Avenue Bellingham, WA 29225	Puget Sound Energy (PSE) P.O. Box 97034 PSE-09S Bellevue, WA 98009-9734

FACILITY LOCATION:

Encogen Generating Station PSE, 915 Cornwall Avenue, Bellingham, Washington

NWCAA ID: 638-V-W

Note that in addition to other applicable rules and regulations, this project is subject to applicable portions of the following federal regulations:

New Source Performance Standards

- 40 CFR 60 Subpart A – General Provisions
- 40 CFR 60 Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units

Best Available Control Technology (BACT) for the project has been determined to be:

- For emissions of nitrogen oxides (NO_x) – Low NO_x burners and Selective Catalytic Reduction (SCR).
- For emissions of carbon monoxide (CO), particulate matter less than 10 microns in diameter (PM-10), volatile organic compounds (VOC) and sulfur dioxide (SO_2) - The exclusive use of natural gas as fuel and good combustion practices.
- For toxic air pollutants (TAP) including ammonia (NH_3), T-BACT has been determined to be - The exclusive use of natural gas as fuel, good combustion practices and good SCR operating and maintenance practices.

As authorized by the Northwest Air Pollution Authority Regulation Section 300, this order is issued subject to the following restrictions and conditions for the auxiliary boiler:

1. Visible emissions shall not exceed five percent (5%) opacity for more than three minutes in any consecutive sixty-minute period as determined by Washington State Department of Ecology Method 9A.

2. Fuel combusted in the boiler shall be limited to natural gas.

3. Emissions of NO_x from the boiler shall not exceed nine parts per million by volume, dry and corrected to three percent oxygen (9 ppmvd @ 3% O_2).

4. Emissions of CO from the boiler shall not exceed fifty parts per million by volume, dry and corrected to three percent oxygen (50 ppmvd @ 3% O_2).

5. Emissions of NH_3 from the boiler shall not exceed ten parts per million by volume, dry and corrected to three percent oxygen (10 ppmvd @ 3% O_2).

6. Compliance with Conditions 3, 4 and 5 of this Order shall be determined by the average of three 60-minute test runs using the test methods prescribed below. Alternative test methods may only be used with advanced written approval from the NWCAA.
   a. Source performance testing shall be conducted in accordance with NWCAA Section 367 and NWCAA Appendix A, using the following test methods
      i. NOx - 40 CFR 60 Appendix A, Method 7E
      ii. CO - 40 CFR 60 Appendix A, Method 10
      iii. NH_3 - Bay Area Air Quality Management District Test Method #1B (BAAQMD ST-1B).
   b. An initial source performance test shall be conducted no later than 180 days after initial startup of the boiler.
   c. On-going compliance shall be determined by source performance testing, which shall be conducted within thirty (30) days of the first introduction of fuel into the boiler, for any reason, after June 1, 2008. Thereafter, performance testing shall be conducted every 4,000 operating hours or every twenty-four (24) months, whichever occurs sooner.
   d. All source performance tests conducted to comply with this Order shall be done with the boiler operating at at least ninety percent (90%) of the boiler's maximum firing rate. If the boiler is tested at a rate less than 90% of the maximum firing rate, then the boiler shall not operate above the firing rate used during the test. This limit on the firing rate shall remain in place until the next source performance test is completed.
   e. During all source performance tests conducted to comply with this Order, the following parameters shall be continuously recorded and included in the source performance test report as raw data and in summary form.
      i. Pressure drop across the SCR
      ii. Temperature of the SCR catalyst bed
      iii. Ammonia feed rate to the SCR
      iv. Fuel use

7. A written operating and maintenance (O/M) manual shall be kept on site and up-to-date for the auxiliary boiler. The O/M manual shall include practices for maintaining good air pollution control, including, but not limited to, methods to operate the SCR within optimal pressure drop, catalyst temperature, and ammonia feed rates that control NOx emissions without excessive ammonia slip emissions. These optimal SCR operating parameters shall be determined based on the manufacture's recommendations and the relationship between the boiler and SCR operating parameters established during periodic source tests. The O/M manual shall include corrective actions to be taken when parameter monitoring indicates that an emission limit of this Order is exceeded.

8. Hourly records shall be kept for the SCR pressure drop, catalyst temperature, and the ammonia feed rate. These records shall be kept for a period of no less than five years.

9. The SCR shall be operated with the pressure drop, catalyst temperature, and the ammonia feed rate maintained within the optimal ranges established in the O/M manual required by Condition 7 of this Order.

Erica K. Miller, E.I.	Lynn Billington, PE	Mark Asmundson
Permitting Engineer	Director, Engineering	Director

Revision a, June 13, 2008: Modify performance testing requirements (Condition 6.c.) from a time-elapsed basis (annually) to an elapsed operating hours basis, since the gas line to the auxiliary boiler was cut and other piping blind-flanged concurrently with the shut-down of the Georgia-Pacific tissue plant in December 2007.

northwest Clean Air agency

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Original Issuance: December 2, 1993

Revision R1: May 4, 1995
Revision R2: August 17, 1995
Revision R3: May 29, 1998
Revision d: March 6, 2009
Revision e: January 13, 2010

Northwest Clean Air Agency (NWCAA) hereby issues
Order of Approval to Construct (OAC) #400e

Project Summary: Puget Sound Energy – Encogen operates three natural gas-fired combustion turbine/heat recovery steam generator trains and a single steam turbine generator.

OPERATOR

Puget Sound Energy – Encogen
Generating Station
915 Cornwall Avenue
Bellingham, WA 98225

OWNER

Puget Sound Energy
P.O. Box 97034 PSE-09S
Bellevue, WA 98009-9734

FACILITY LOCATION:

915 Cornwall Ave. – Bellingham, WA 98225

Permit History

- As of the date of issuance, this Order supersedes NWCAA OAC#400d dated March 6, 2009.
- OAC #400 issued December 2, 1993, superseded OAC #310 dated September 11, 1991.

Note that in addition to other applicable rules and regulations, this project is subject to applicable portions of the following federal regulations:

New Source Performance Standards

- 40 CFR 60 Subpart A – General Provisions
- 40 CFR 60 Subpart GG – Standards of Performance for Stationary Gas Turbines

As authorized by the Northwest Clean Air Agency (NWCAA) Regulation Section 300, this order is issued subject to the following restrictions and conditions:

1. The combustion turbines shall burn only natural gas as defined in 40 CFR 60.331(u),

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(as amended through July 8, 2004) during periods when there is no natural gas curtailment[1]. Periodic testing for oil firing per manufacturer's recommendations is exempt from this restriction. During periods of natural gas curtailment or testing, the combustion turbines shall not burn more than ten million six hundred thousand (10,600,000) gallons of oil per calendar year. The operator shall not burn more than 300,000 gal/year of oil for testing purposes. Oil is defined as "on-road specification diesel fuel" containing no more than 0.05 percent sulfur by weight, as specified in 40 CFR 80.29, as amended through July 1, 1992.

2. Emissions from each combustion turbine stack shall not exceed the following:

   a. Nitrogen oxides - 7.0 ppmdv corrected to 15% O_2 and ISO[2] standard conditions daily average when burning natural gas, and 11.0 ppmdv corrected to 15% O_2 and ISO standard conditions daily average when burning oil.

   b. Carbon monoxide - 10.0 ppmdv corrected to 15% O_2 and ISO standard conditions hourly average.

   c. Ammonia - 10.0 ppmdv corrected to 15% O_2 and ISO standard conditions one-hour average.

   d. Opacity - Not to exceed five percent (5%) as measured by EPA Method 9.

3. Pollutant emissions from the entire project shall not exceed the following:

		Natural Gas Firing	Oil Firing
a.	Nitrogen oxides (NO_x)	1,000 lb/day 175 ton/12 consecutive months	1,605 lb/day 175 ton/12 consecutive months
b.	Carbon monoxide (CO)	718 lb/day	718 lb/day
c.	Ammonia (NH_3)	437 lb/day	437 lb/day

4. Continuous emission monitors for oxygen and nitrogen oxides shall be installed and operated for each stack:

   a. Oxygen (O_2) in accordance with Performance Specification 3 (40 CFR 60 Appendix B).

   b. NO_x in accordance with Performance Specification 2 (40 CFR 60 Appendix B).

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[1] *Period of natural gas curtailment or supply interruption* means a period of time during which the supply of natural gas to an affected facility is halted for reasons beyond the control of the facility. An increase in the cost or unit price of natural gas does not constitute a period of natural gas curtailment or supply interruption. (This definition is taken from 40 CFR 63.7575).

[2] ISO standard conditions are defined as 288 degrees Kelvin, 60 percent relative humidity, and 101.3 kiloPascal pressure.

All monitoring systems shall be approved by the NWCAA prior to installation. The CEMS shall be installed, calibrated, maintained and operated in accordance with appropriate specifications of 40 CFR 60 Appendices B and F, and NWCAA Section 367 and Appendix A.

5. Annual source testing for carbon monoxide (CO) and ammonia (NH_3) emissions shall be completed for each gas turbine/heat recovery steam generator stack using the following test methods:

   a. CO: EPA 40 CFR 60 Appendix A Method 10

   b. Ammonia: Bay Area Air Quality Management District Source Test Procedure ST-1B, "Ammonia, Integrated Sampling" (BAAQMD Method ST-1B), or an equivalent method approved in advance by the NWCAA. Source test samples must be unfiltered as taken from each stack. Fuel consumption, nitrogen oxides emissions, and ammonia injection rate during each emission test shall be reported with the test results.

   Testing shall be conducted while burning natural gas and shall be completed within eleven to thirteen months of the anniversary date of the previous test. After three consecutive years of CO source test results compliant with the applicable emission limit, CO testing frequency may be reduced to once every three years. Testing shall revert to annual CO source testing for all turbines if any results are not compliant with the applicable emission limits. All source testing shall be conducted, and plans and test results submitted, in accordance with NWCAA Section 367 and NWCAA Appendix A.

6. The following data shall be reported on a calendar month basis. The information shall be submitted to the NWCAA within 30 days after the end of the previous month. Records of the following data shall be maintained on site for a period of at least five years.

   a. Total therms of natural gas burned in the turbines.

   b. The number of hours each turbine operated.

   c. Total pounds of SO_2 emitted on a monthly basis.

7. A quality assurance manual for all continuous emission monitors shall be kept current and available onsite at all times for operators and for inspection by NWCAA personnel. The quality assurance procedures shall be in accordance with 40 CFR 60 Appendix F and the NWCAA Section 367 and Appendix A.

Erica K. Shuhler, P.E.
Chemical Engineer

Mark Buford, P.E.
Assistant Director

Revision R1: Deleted reference to NSPS Subpart Db, changed NOC number from 340 to 400, and revised language to clarify that NOC number 400 replaces previously issued NOC number 310.

Revision R2: Removed requirements to report highest concentration and excess emissions of CO on monthly basis.

Revision R3: Revise NO_x limits to allow flexibility for variable operating conditions. Remove requirement for continuous ammonia monitoring. Delete obsolete requirements.

Revision d: Update OAC format and Northwest Clean Air Agency name. Change monthly emissions report due date from within 20 days after the end of the previous month to within 30 days after the end of the previous month to be consistent with other similar sources and with Encogen's AOP language. Remove references to NWAPA's "Guidelines for Industrial Monitoring Equipment and Data Handling" and replace with the NWCAA Section 367 and NWCAA Appendix A. Remove Condition 7 and add applicable New Source Performance Standards to the beginning of the permit.

Revision e: Added periodic CO and NH_3 stack testing requirements, updated the ammonia stack testing method from EPA Method 5 to the Bay Area Air Quality Management District (BAAQMD) Method ST-1B, dropped the unburned hydrocarbon emission limit, and dropped initial testing requirements. Removed reference to "pipeline grade" natural gas and included a definition for natural gas curtailment and a citation for the definition of "natural gas". Dropped the particulate matter (PM) mass emission limit and SO_2 mass and concentration emission limits, since PM and SO_2 are regulated through the PSD permit. Removed duplicate PSD reporting requirements. Dropped the nuisance odor condition, since that requirement is covered by NWCAA regulations. Added a requirement that the CEMs quality assurance manual be kept current and available onsite. Also included some minor grammatical revisions.