

# Puget Sound Clean Air Agency

1904 3rd Ave, Ste 105, Seattle, WA 98101-3317: Brian Renninger (206) 689-4077

## Point Source Emission Report

February 18, 2009

**PUGET SOUND ENERGY, FREDERICKSON**

Facility ID #: **10028**

AFS#: **053-053-00028**

### Section 4 - Facility Emission Summary

<u>CAS#</u>	<u>Flags</u>	<u>Air Contaminants:</u>	<u>pounds/ 2006</u>	<u>tons / 2006</u>	<u>pounds/2007</u>	<u>tons /2007</u>
7664-41-7	T	Ammonia (NH3)				
CO		Carbon Monoxide	<u>6,964</u>	<u>3</u>	<u>5,620</u>	<u>3</u>
NO2		Nitrogen Oxides	<u>22,993</u>	<u>11</u>	<u>17,567</u>	<u>9</u>
43207	V	Other Volatile Organic Compounds (VOC)	<u>340</u>	<u>&lt; 1</u>	<u>224</u>	<u>&lt; 1</u>
PM10		Particulate Matter	<u>1,391</u>	<u>&lt; 1</u>	<u>1,073</u>	<u>&lt; 1</u>
PM2.5		Particulate Matter	<u>1,391</u>	<u>&lt; 1</u>	<u>1,073</u>	<u>&lt; 1</u>
SO2		Sulfur Oxides	<u>1,684</u>	<u>&lt; 1</u>	<u>2,652</u>	<u>1</u>
		Volatile Organic Compounds Total (V)	<u>340</u>	<u>&lt; 1</u>	<u>224</u>	<u>&lt; 1</u>

# Puget Sound Air Pollution Control Agency

HEREBY ISSUES AN ORDER OF APPROVAL  
TO CONSTRUCT, INSTALL, OR ESTABLISH

Registration No. 10028

Notice of  
Construction No. 6860

Date AUG 22 1997

Two GE Model PG7101E Heavy Duty Gas Turbines at 794 MMBtu/hr each, and one 4.2 Million Gallon Diesel Fuel Storage Tank.

ROBERT S BARNES

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PUGET POWER (FREDERICKSON)

PO BOX 97034

BELLEVUE

WA 98009-9734

O PUGET POWER (FREDERICKSON)

W PO BOX 97034

N BELLEVUE

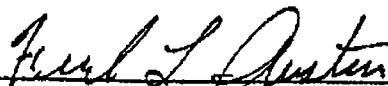
WA 98009-9734

## INSTALLATION ADDRESS

PUGET POWER (FREDERICKSON), 4717 192ND ST E, TACOMA, WA, 98440

## THIS ORDER IS ISSUED SUBJECT TO THE FOLLOWING RESTRICTIONS AND CONDITIONS

- Approval is hereby granted as provided in Article 6 of Regulation I of the Puget Sound Air Pollution Control Agency to the applicant to install or establish the equipment, device or process described hereon at the INSTALLATION ADDRESS in accordance with the plans and specifications on file in the Engineering Division of PSAPCA.
- Compliance with this ORDER and its conditions does not relieve the owner or operator from the responsibility of compliance with Regulations I, II or III, RCW 70.94 or any other emission control requirements, nor from the resulting liabilities and/or legal remedies for failure to comply. Section 5.05(e) of Regulation I requires that the owner or operator must develop and implement an operation and maintenance (O&M) plan to assure continuous compliance with Regulations I, II, and III.
- This approval does not relieve the applicant or owner of any requirement of any other governmental agency.
- Puget Power (Frederickson) shall limit the emissions of the two Model PG7101E gas turbines to not more than allowed in Condition No. 5, and maintain operation logs for a period of 2 years. These records shall be made available to PSAPCA personnel upon request.
- Puget Power (Frederickson) shall not exceed the hourly average emission concentration on a percent by dry volume basis corrected to 15% O2 for:
  - $NO_x = 0.0075 * (14.4/Y) + F$ , or
  - $SO_2 = 0.009$  (or a maximum fuel sulfur content of 0.5% by weight).Where Y is the manufacturer's rated heat rate at peak load in kilojoules/watt-hour which shall not exceed 14.4 kilojoules/watt-hour, and  
Where F is:
  - 0, when N (the fuel bound nitrogen by % weight) is less than or equal to 0.015;
  - $0.04 * N$ , when N is greater than 0.015 but less than or equal to 0.1;
  - $0.004 + 0.0067 * (N - 0.1)$ , when N is greater than 0.1 but less than 0.25; or
  - 0.005, when N is greater than 0.25.
- Puget Power (Frederickson) shall not exceed the emission rate for:
  - $NO_x = 388$  lb/hr per turbine and 580 ton/year total for two turbines; and
  - $SO_2 = 480$  lb/hr per turbine and 720 ton/year total for two turbines.
- Puget Power (Frederickson) shall submit records of fuel usage and the SO2 and NOx emissions to PSAPCA each month, whenever the SO2 or NOx emissions in Condition Nos. 5 and 6 exceed 90% of the limit during any 12 consecutive month period.
- This Order of Approval No. 6860, issued to modify the operating hours to match the air quality limits in the Prevention of Significant Deterioration Permit No. PSD-X80-17 dated September 25, 1980 (40 CFR Part 52), hereby supersedes and cancels Order of Approval No. 6554 dated Jul 9, 1996.



FREDRICK L. AUSTIN P.E.  
Reviewing Engineer

MEJ



JAY M. WILLENBERG  
Reviewing Engineer



for DENNIS J. McLERRAN  
Air Pollution Control Officer



# Puget Sound Clean Air Agency

Notice of  
Construction No. **8436**

Registration No. **10028**

Date **OCT 09 2002**

## HEREBY ISSUES AN ORDER OF APPROVAL TO CONSTRUCT, INSTALL, OR ESTABLISH

Replacement of emission control technology at an existing stationary source under Puget Sound Clean Air Agency Regulation I, Section 6.07(c)(4): New GE Breech-Load Fuel/Water Nozzles rated at 84 gpm of water as control equipment for two existing 75 megawatt, GE Model PG7101E Stationary Gas Turbine Units, No. 1 and No. 2, and ancillary water supply equipment on two "skids." This order amends NOC Order No. 8436, approved on 2/5/2001, in order to include lower, RACT emission limits for SO<sub>2</sub>, and to clarify non-PSD applicability. Puget Sound Energy has an air operating permit, and this is an "off-permit change" under WAC 173-401-724.

### APPLICANT

**Chris Drechsel**  
**Puget Sound Energy**  
**PO Box 97034**  
**Bellevue, WA 98009-9734**

### OWNER

**Puget Sound Energy**  
**PO Box 97034**  
**Bellevue, WA 98009-9734**

### INSTALLATION ADDRESS

**Puget Sound Energy (Frederickson), 4717 192nd St E, Tacoma, WA, 98440**

### THIS ORDER IS ISSUED SUBJECT TO THE FOLLOWING RESTRICTIONS AND CONDITIONS

1. Approval is hereby granted as provided in Article 6 of Regulation I of the Puget Sound Clean Air Agency to the applicant to install or establish the equipment, device or process described hereon at the INSTALLATION ADDRESS in accordance with the plans and specifications on file in the Engineering Division of the Puget Sound Clean Air Agency.
2. This approval does not relieve the applicant or owner of any requirement of any other governmental agency.
3. PSE shall not consume more fuel than is equivalent to 6,900,000 MMBtu facility-wide, during any consecutive 12-month period (based upon a maximum capacity of 794.25 MMBtu/hr for each turbine unit, 1,020 Btu per cubic foot for natural gas, and 139,000 Btu per gallon of distillate oil).
4. PSE shall fire the turbine units only on natural gas and distillate oil with sulfur content no greater than 0.05 percent sulfur by weight, as purchased. PSE shall maintain records of the type and sulfur content of all distillate oil purchased and consumed by the facility. PSE shall obtain and maintain distillate oil specifications from each distillate oil supplier and shall certify the distillate oil purchased from that supplier contains no used distillate oil and that distillate oil sulfur content does not exceed 0.05% sulfur by weight.
5. Emissions of NOX from PSE shall not exceed:
  - a. 144 pounds per hour from any combustion turbine exhaust stack when fired on natural gas;
  - b. 246 pounds per hour from any combustion turbine exhaust stack when fired on distillate oil; and
  - c. 530 tons per year from the entire facility.

PSE shall demonstrate compliance with this requirement by maintaining "actual" water-to-fuel ratios no less than

# Order of Approval for NC No. 8436

OCT 09 2002

"required" water-to-fuel ratios, as measured by a continuous monitoring system to monitor and record the fuel consumption and the ratio of water to fuel being fired in the turbine. This system shall be accurate to within  $\pm 5.0$  percent and shall comply with 40 CFR 60.334(a).

6. Not later than 180 days after startup of each turbine with the new nozzles, Puget Sound Energy shall conduct a performance test of each turbine on natural gas operation for compliance with the NOX emission limits in Condition 5 and furnish the Puget Sound Clean Air Agency a written report of the results of such performance test, in accordance with 40 CFR 60.335 and Puget Sound Clean Air Agency Regulation I, Section 3.07.

7. PSE shall record deviations with requirements in this Order and report to the Puget Sound Clean Air Agency in accordance with 40 CFR 60.334(c), modified as follows:

a. (c)(1) Nitrogen oxides. Any one-hour period during which the average water-to-fuel ratio, as measured by the continuous monitoring system required in Condition 5, falls below the water-to-fuel ratio determined to demonstrate compliance. Each report shall include the average water-to-fuel ratio, average fuel consumption, ambient conditions, gas turbine load, and nitrogen content of the fuel during the period of excess emissions, and the graphs or figures developed under §60.335(a).

b. (c)(2) Sulfur dioxide. Any daily period during which the sulfur content of the fuel supplied to the storage tank for the gas turbine exceeds 0.05 percent.

8. This Order of Approval supersedes and cancels Order of Approval No. 8436, dated February 15, 2001.

## APPEAL RIGHTS

Pursuant to Puget Sound Clean Air Agency's Regulation I, Section 3.17 and RCW 43.21B.310, this Order may be appealed to the Pollution Control Hearings Board (PCHB). To appeal to the PCHB, a written notice of appeal must be filed with the PCHB and a copy served upon Puget Sound Clean Air Agency within 30 days of the date the applicant receives this Order.



Fredrick Austin  
Reviewing Engineer  
ns



Steven Van Slyke  
Supervising Engineer