

Puget Sound Clean Air Agency

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

Point Source Emission Report

June 1, 2010

FREDERICKSON POWER LP

Facility ID #: 10645

AFS#: 053-053-10645

Section 4 - Facility Emission Summary

<u>CAS#</u>	<u>Flags</u>	<u>Air Contaminants:</u>	<u>pounds/ 2008</u>	<u>tons / 2008</u>	<u>pounds/2009</u>	<u>tons /2009</u>
7664-41-7	T	Ammonia (NH3)				
CO		Carbon Monoxide	1,200	< 1		
NO2		Nitrogen Oxides	86,000	43		
43207	V	Other Volatile Organic Compounds (VOC)	35,400	18		
PM10		Particulate Matter	76,200	38		
SO2	T	Sulfur Oxides (including 7446-09-05)	4,600	2		
VOC	V	Volatile Organic Compounds (VOC)				
		Volatile Organic Compounds Total (V)	35,400	18		
		Toxic Air Contaminants Total (T)	4,600	2		



Puget Sound Clean Air Agency

Notice of
Construction No. 7968

Registration No. 10945

Date NOV 09 2001

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

One Electrical Power Generating Plant rated at 249.33 MW (combined cycle with 6.66 MW auxiliary losses) using natural gas and No. 2 fuel oil that includes: (a) a primary Combustion Gas Turbine Generator (CTG) rated at 167.26 MW (GE-PG7241-FA Frame No: 7 (FA)) while burning 1599 MMBtu/hr of natural gas or No. 2 fuel oil exhausting to (b) a Heat Recovery Steam Generator (HRSG) (which runs a secondary turbine rated at 88.73 MW) fired by a Coen Duct Burner while burning 430 MMBtu/hr of natural gas exhausting to (c) one Engelhard Oxidation Catalyst unit controlling CO and VOC, and (d) one Hitachi Selective Catalytic Reduction (SCR) unit, in series, controlling NOx exhausting 1,024,700 scfm of exhaust gas @ 189 degrees; and (e) one 1,470,000 gallon Fuel Oil Storage Tank.

APPLICANT

Richard D'Amato, Project Manager
Frederickson Power LP
18610 50th Ave E
Tacoma, WA 98446

OWNER

Frederickson Power LP
18610 50th Ave E
Tacoma, WA 98446

INSTALLATION ADDRESS

Frederickson Power LP, 18610 50th Ave E, Tacoma, WA, 98446

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. Frederickson Power LP shall notify the U.S. Environmental Protection Agency and the Puget Sound Clean Air Agency in writing to comply with Standards of Performance for New Stationary Sources (40 CFR 60 Subparts A (General Provisions) and GG (Standards of Performance for Stationary Gas Turbines)) and meet the requirements for gas turbines greater than 107.2 GJoules/hr as defined in 40 CFR Part 60.332(a)(1).
4. Frederickson Power LP shall submit to the Puget Sound Clean Air Agency within 60 days of approval a definition of plant startup, unless otherwise approved by the Control Officer.
5. Frederickson Power LP shall install a NOx continuous emissions monitoring system (consisting of a NOx pollutant concentration monitor and an O2 diluent gas monitor) that meets 40 CFR Part 75 and Puget Sound Clean Air Agency Regulation I, Article 12 (except Section 12.03(c)), and the results of the RATA shall be calculated in the units of the emission standards of Condition No. 17(a).
6. Frederickson Power LP shall install a CO continuous emissions monitoring system (consisting of a CO pollutant concentration monitor and an O2 diluent gas monitor) which follows procedures and meets the requirements and criteria that applies to the NOx CEMS in Condition No. 5 to demonstrate compliance with Condition 17(c).

Order of Approval for NC No. 7968

7. If EPA promulgates an NH₃ Performance Specification within 12 months of plant startup, Frederickson Power LP shall install an NH₃ continuous emission monitor within 60 days of date of promulgation.
8. Frederickson Power LP shall submit to the Puget Sound Clean Air Agency at least 30 days prior to plant startup, unless otherwise approved by the Control Officer, the following:
 - (a) A Source Test Plan shall meet Regulation I, Section 3.07 for the demonstration of compliance with Condition Nos. 17(a), 17(c) and 17(f) within 180 days after plant startup, on both natural gas and oil.
 - (b) A Continuous Emission Monitoring System (CEMS) Quality Assurance, Quality Control (QA/QC) Plan shall satisfy 40 CFR Part 75 for the NO_x and CO.
 - (c) An initial Parametric NH₃ Emissions Monitoring Plan shall establish a predictive relationship between turbine and control system operating parameters and emissions of NH₃. This initial plan shall include source test dates and the monitoring of expected operating parameters.
 - (d) An Unavoidable Excess Emissions Plan addressing 40 CFR 77 and WAC 173-400-107 and containing general procedures shall demonstrate excess emissions are unavoidable during startup and shutdown periods, scheduled maintenance periods, and upset periods. This Plan shall address corrective actions and preventive maintenance. Frederickson Power LP would follow during periods of excess emissions such as conditions for slowing or shutting down the emission unit, switching fuels or other actions to avoid or minimize emission impacts.
9. Frederickson Power LP shall submit to the Puget Sound Clean Air Agency for approval within 180 days after plant startup, a final Parametric NH₃ Emissions Monitoring Plan that contains source tests results and the established relationship between the turbine and control system operating parameters and NH₃ emissions. This plan shall define QA/QC procedures and corrective actions when parameter monitoring indicates Condition No. 17(f) may be exceeded.
10. Frederickson Power LP shall perform annual source tests following Regulation I, Section 3.07, to demonstrate compliance with Conditions No. 17(a), 17(c), and 17(f), and re-establish parametric relationships of Condition No. 9.
11. Frederickson Power LP shall minimize emissions from the gas turbine as specified in the Operations and Maintenance Plan and as recommended by the manufacture during startup and shut down. Frederickson Power LP shall count emissions during periods of startup and shutdown toward the applicable annual emission limitations of Condition No. 16.
12. A start-up period commences when fuel starts flowing to the turbine. A shut-down period terminates when fuel stops flowing to the turbine. Turbine startup shall be defined as that period of time from initiation of combustion turbine firing until the unit reaches steady state load operation. Steady state operation shall be reached when the combustion turbine reaches minimum load (50%) and the steam turbine is declared available for load changes. Unit shutdown shall be defined as the period of time from departing from steady state operation to cessation of combustion turbine firing; this period shall not exceed 60 minutes.
13. Frederickson Power LP shall submit to the Puget Sound Clean Air Agency monthly reports verifying compliance with 40 CFR 77, WAC 174-400-107, and Conditions Nos. 11, 12, 14, 15, 16, and 17. Each monthly report shall include the total emissions for the reported month and the total emissions of the previous twelve (12) months for each pollutant listed in Condition No. 16. In reporting total emissions, Frederickson Power LP shall use 40 CFR Part 75, Appendix C to address missing data. Frederickson Power LP shall use the CEM system to verify compliance with the limits of Condition No. 16(a), 16(c), 17(a) and 17(c). Frederickson Power LP shall use the sulfur content of the fuel and EPA Reference Method 19 to verify compliance with Condition No. 16(b). To verify compliance with conditions 16(d) and 16(e),

Order of Approval for NC No. 7968

Frederickson Power LP shall use emission factors based on the most recent compliance test. Until a compliance test is completed, Frederickson Power LP shall use the following emission factors:

VOC = 0.0045 lb/MMBtu (natural gas); = 0.0095 lb/MMBtu (fuel oil)

PM10 = 0.0097 lb/MMBtu (natural gas); = 0.0403 lb/MMBtu (fuel oil)

14. Frederickson Power LP shall burn fuel oil with sulfur content not exceeding 0.05% by weight.

15. Frederickson Power LP shall not burn more than 1,540,000 gallons of oil during any twelve (12) month period. Frederickson Power LP shall report to the Puget Sound Clean Air Agency monthly oil usage and twelve (12) month totals in monthly reports required in Condition No. 13.

16. Frederickson Power LP shall not exceed the following total emissions for any twelve (12) consecutive month period:

(a) NO_x = 98.9 tons;

(b) SO₂ = 54.4 tons;

(c) CO = 91.2 tons;

(d) VOC = 37.7 tons;

(e) PM10 = 83.3 tons

17. Frederickson Power LP shall not exceed the following hourly emission standards (dry, corrected to 15% O₂) during normal operations, not including start-up or shut-down periods defined in Conditions No. 4, No. 11 and No. 12:

(a) NO_x = 3.0 ppm (on NG), 13.0 ppm (on No. 2 oil), 8-hour average, EPA Ref. Method 20;

(b) SO₂ = 1.8 ppm (on NG), 12.50 ppm (on oil), EPA Ref. Method 6C or Method 20;

(c) CO = 7.0 ppm (on NG), 7.0 ppm (on No. 2 oil), 8-hour average, EPA Ref. Method 10;

(d) VOC = 4.9 ppm (on NG), 9.40 ppm (on No. 2 oil), 1-hour average, EPA Ref. Method 25A;

(e) PM10 = 0.0028 gr/dscf (on NG), 0.0131 gr/dscf (on No. 2 oil), 1-hour average, EPA Ref. Method 5 (EPA Method 5 with Board Resolution 540 includes the "back half");

(f) NH₃ = 10.0 ppm (on NG), 1-hour average, Ref. Method as approved by the Puget Sound Clean Air Agency; and

(g) Opacity = 5% opacity for a period or periods aggregating more than 3 minutes in any 1 hour as determined by WDOE Method 9A.

18. Frederickson Power LP shall maintain all records required by this approval on-site for at least two years and make these records available to Puget Sound Clean Air Agency personnel upon request.

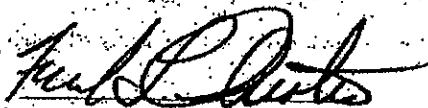
19. This Order of Approval No. 7968, issued to change the brand name of the selective catalytic reduction unit in the project description, amend Conditions No. 5, 8(b) and 13 to use parametric monitoring for flow rate measurements per 40 CFR 75 and redefine Startup and Shutdown descriptions, hereby supersedes and cancels Order of Approval No. 7968

Order of Approval for NC No. 7968

dated Apr 25, 2000

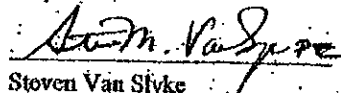
APPEAL RIGHTS

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
P.E.
Reviewing Engineer

ns



Steven Van Slyke
Supervising Engineer

Puget Sound Clean Air Agency

Notice of
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Registration No. 10645

Date APR 25 2000



Clean Air Agency

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APPLICANT

Harvie Campbell
Frederickson Power, L.L.C.
1333 West Georgia St, Vancouver BC
CANADA, V6E 3K9

OWNER

Frederickson Power, L.L.C.
1333 West Georgia St, Vancouver BC
CANADA, V6E 3K9

INSTALLATION ADDRESS

Frederickson Power L.L.C., 18610 50th Ave E, Frederickson, WA, 98373

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2. This approval does not relieve the applicant or owner of any requirement of any other governmental agency.
3. Frederickson Power, L.L.C. shall notify the U.S. Environmental Protection Agency and the Puget Sound Clean Air Agency in writing to comply with Standards of Performance for New Stationary Sources (40 CFR 60 Subparts A (General Provisions) and GG (Standards of Performance for Stationary Gas Turbines)) and meet the requirements for gas turbines greater than 107.2 GJoules/hr as defined in 40 CFR Part 60.332(a)(1).
4. Frederickson Power, L.L.C. shall submit to the Puget Sound Clean Air Agency within 60 days of approval a definition of plant startup, unless otherwise approved by the Control Officer.
5. Frederickson Power, L.L.C. shall install a CEMS for NOx, O2, and a continuous stack flow rate monitoring system that meets 40 CFR Part 75 and Puget Sound Clean Air Agency Regulation I, Article 12 (except Section 12.03(c)), and the results of the RATA shall be calculated in the units of the emission standards of Condition No. 17(a).
6. Frederickson Power, L.L.C. shall install a CEMS for CO which follows procedures and meets the requirements and criteria that applies to the NOx CEMS in Condition No. 5 to demonstrate compliance with Condition 17(c).
7. If EPA promulgates an NH3 Performance Specification within 12 months of plant startup, Frederickson Power, L.L.C. shall install an NH3 continuous emission monitor within 60 days of date of promulgation.
8. Frederickson Power, L.L.C. shall submit to the Puget Sound Clean Air Agency at least 30 days prior to plant startup,

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 11. Frederickson Power, L.L.C. shall not allow start-up time to exceed three hours or shut-down time to exceed three hours during any one day, commencing at midnight and emissions during these periods shall be counted toward the applicable annual emission limitations of Condition No. 16.
 12. A start-up period commences when fuel starts flowing to the turbine. A shut-down period terminates when fuel stops flowing to the turbine.
 13. Frederickson Power, L.L.C. shall submit to the Puget Sound Clean Air Agency monthly reports verifying compliance with 40 CFR 77, WAC 174-400-107, and Conditions Nos. 11, 12, 14, 15, 16, and 17. Each monthly report shall include the total emissions for the reported month and the total emissions of the previous twelve (12) months for each pollutant listed in Condition No. 16. In reporting total emissions, Frederickson Power, L.L.C. shall use 40 CFR Part 75, Appendix C to address missing data. Frederickson Power, L.L.C. shall use the CEM system and the flow rate monitoring system to verify compliance with the limits of Condition No. 16(a), 16(c), 17(a) and 17(c). Frederickson Power, L.L.C. shall use the sulfur content of the fuel and EPA Reference Method 19 to verify compliance with Condition No. 16(b). To verify compliance with conditions 16(d) and 16(e), Frederickson Power, L.L.C. shall use emission factors based on the most recent compliance test. Until a compliance test is completed, Frederickson Power, L.L.C. shall use the following emission factors:

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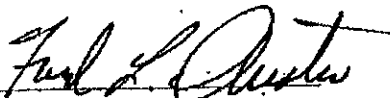
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- (f) NH₃ = 10.0 ppm (on NG), 1-hour average, Ref. Method as approved by the Puget Sound Clean Air Agency; and
- (g) Opacity = 5% opacity for a period or periods aggregating more than 3 minutes in any 1 hour as determined by WDOE Method 9A.

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APPEAL RIGHTS

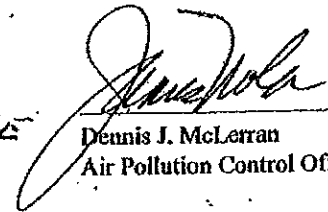
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Fredrick Austin, PE
Reviewing Engineer
mej



Jay M. Willenberg, PE
Reviewing Engineer



Dennis J. McLerran
Air Pollution Control Officer