

STATEMENT OF BASIS
Air Pollution Control
Title V Permit to Operate Renewal
Permit No.: V-PI-2704900084-2009-10

The purpose of this document is to set forth the legal and factual bases for permit renewal conditions, including references to applicable provisions of the Clean Air Act (CAA or Act) and implementing regulations. This document also gives the derivation of conditions as required by 40 C.F.R. § 71.11(b).

1.0 GENERAL INFORMATION

(A). Applicant and Stationary Source Information

Owner	Facility (SIC Code: 4911)
Energy Alternatives, Inc. 21210 Eaton Ave., Suite C. Farmington, Minnesota 55024	Treasure Island Resort & Casino 5734 Sturgeon Lake Road Red Wing, Minnesota 55066
Responsible Official	Facility Contact
Philip Kairis (651) 341-2244	Vern Hollar (651) 341-2242

(B). Facility Description

Treasure Island Resort & Casino (Facility) is a hotel and gambling casino located on the banks of the Mississippi River on the Prairie Island Indian Community in Red Wing, Minnesota.

The U. S. Environmental Protection Agency (EPA) issued the Facility a Prevention of Significant Deterioration (PSD) Air Quality Construction Permit (No. PSD-PI-R50003-00-01) on December 20, 2000, allowing the construction of four internal combustion diesel engines and subjecting the Facility to the requirements of 40 C.F.R. Part 71. EPA issued an initial Title V Permit to Operate to the Facility on February 23, 2004.

The Facility commenced construction on the diesel engines on January 15, 2001. The engines are owned and operated by Energy Alternatives, Inc., and were installed northeast of the Treasure Island Resort & Casino at the Prairie Island Community Wastewater Treatment Facility. The electricity produced is used for peak load management and backup power for the Facility. The total generation capacity of the engines is 7.3 megawatts (MW). Electricity generated at the Facility is not sold for distribution.

(C). Area Classification

The Prairie Island Indian Community is located in Goodhue County, an area considered to be attaining the National Ambient Air Quality Standards for all criteria pollutants. Since the Facility is located in Indian Country, the EPA is primarily responsible for issuing and enforcing any air quality permits for the source until such time that the Tribe has EPA approval to do so.

(D). Major Source Status

The Potential to Emit from all units at the facility (EU-01, EU-02, EU-03, and EU-04) exceeds 100 tons per year for NO_x; therefore, the requirement for a Title V permit has been triggered.

(E). Enforcement Issues

The EPA is not aware of any pending enforcement issues at the Facility.

(F). Permit History

On December 20, 2000, EPA issued a PSD permit for the installation of four internal combustion engines.

On February 23, 2004, EPA issued an initial Title V permit for the operation of the four internal combustion engines.

2.0 PROCESS DESCRIPTION

(A). Summary

The four engines installed at the Facility are 16-cylinder Caterpillar Model 3516B turbocharged engines. Each engine operates at a rated speed of 1800 revolutions per minute and produces shaft power of 2,563 brake horsepower. Each engine burns approximately 130.2 gallons per hour of low sulfur (0.05%) diesel fuel when operated at capacity. The shaft power of each engine drives a 1825 kW generator to produce electricity.

Unit	Fuel Type	Emission Unit ID	Manufacturer/ Unit type	Date Installed	Maximum Design Heat Input (MMBtu/hr)
Internal Combustion Engine	Diesel	EU-01	Caterpillar 3516B	05/25/01	16.76
Internal Combustion Engine	Diesel	EU-02	Caterpillar 3516B	05/25/01	16.76
Internal Combustion Engine	Diesel	EU-03	Caterpillar 3516B	05/25/01	16.76
Internal Combustion Engine	Diesel	EU-04	Caterpillar 3516B	05/25/01	16.76

A 10,000-gallon underground diesel fuel tank is located adjacent to the building, and is subject to underground storage tank regulations under the Resource Conservation, and Recovery Act.

(B). Insignificant Activities

Unit/Activity	Basis
Crankcase blowby, venting organic compounds from the oil pan into the engine room	40 C.F.R. § 71.5(c)(11)(ii)(A)
Access road	40 C.F.R. § 71.5(c)(11)(ii)(A)

(C). Potential Emissions

Potential to Emit (PTE) Summary ^{a,b} Tons Per Year (tpy)							
Emission Unit	VOC ^c	NOx ^d	CO ^d	PM ^d	PM10 ^{c,d}	SO ₂ ^d	Total HAPs ^c
EU-01	5.08	163.99	13.36	3.81	3.13	3.99	0.11
EU-02	5.08	163.99	13.36	3.81	3.13	3.99	0.11
EU-03	5.08	163.99	13.36	3.81	3.13	3.99	0.11
EU-04	5.08	163.99	13.36	3.81	3.13	3.99	0.11
Total PTE	20.32	655.96	53.44	15.24	12.52	15.96	0.44

^a Calculations based on 100 percent load, 8760 hours of operation per year.

^b tons per year = emission factor (lb/hr) * 8760 hr/year * (1 ton/2000 lbs)

^c Calculations based on emission factors from EPA AP-42, Chapter 3.3 for Large Stationary Diesel, dated 10/96.

^d Equipment specific emission factors for a Caterpillar 3516B dry engine manifold from Ziegler were used in place of AP-42 default emission factors.

(D). Projected Emissions

Projected Emission Summary *							
Emission Unit	VOC tpy	NOx tpy	CO tpy	PM tpy	PM10 tpy	SO ₂ tpy	Total HAPs tpy
EU-01	0.32	10.30	0.84	0.24	0.20	0.25	0.01
EU-02	0.32	10.30	0.84	0.24	0.20	0.25	0.01
EU-03	0.32	10.30	0.84	0.24	0.20	0.25	0.01
EU-04	0.32	10.30	0.84	0.24	0.20	0.25	0.01
Total Projected Emissions	1.28	41.20	3.36	0.96	0.80	1.00	0.04

* Emission estimates are based on 550 hours of operation per year in accordance with Permit Condition 2.0(A)(2).

(E). Hazardous Air Pollutants Summary

Hazardous Air Pollutants Summary (per engine)				
HAP	Emission Factor lb/MMBtu	PTE ^a lbs/hr	PTE ^b tpy	Projected Emissions ^c tpy
Benzene	7.76 E-04	0.0130	0.0569	0.00357
Toluene	2.81 E-04	0.00470	0.0206	0.00129
Xylenes	1.93 E-04	0.00323	0.0141	0.000888
Formaldehyde	7.89 E-05	0.00132	0.00578	0.000363
Acetaldehyde	2.52 E-05	0.000422	0.00185	0.000116
Naphtalene	1.30 E-04	0.00217	0.00953	0.000598
Acrolein	7.88 E-06	0.000132	0.000578	0.0000363
Total HAPs		0.0250	0.109	0.007

^a lbs/hr = (130 gal/hr)*(71 lb/gal) * (18,390 BTU/lb) * (10⁻⁶ MMBtu)* Emission Factor

^b tpy = (lb/hr)*(8760 hr/yr) * (1 ton/2000 lbs)

^c Projected emission estimates are based on 550 hours of operation per year in accordance with Permit Condition 2.0 (A)(2).

(F). Emission Factors

Emission Factors							
Emission Unit(s)	VOC ^{a,b} lb/MMBtu	NOx ^a lb/hr	CO ^a lb/hr	PM ^a lb/hr	PM10 ^c lb/hr	SO ₂ ^d lb/hr	HAPs ^{e,f} lb/hr
EU-01 through EU-04	1.16	37.44	3.05	0.87	0.715	0.911	0.0250

^a Emission factors provided by Ziegler for a Caterpillar 3561B dry engine manifold, as stated in permit application. Based on 100 percent load.

^b VOC measured as hydrocarbons.

^c PM10 is calculated based on the fraction of PM10 in PM (provided in AP-42, Table 3.4-2) multiplied by the emission factor for PM provided by the engine manufacturer.

^d SO_2 (lb/hr) = 130.2 gal fuel/hr * density (7 lb/gal) * 0.05 part S/100 parts fuel * lbmol S/32 lb S * 64 lb SO₂/lbmol SO₂

^e HAP emission factors are from Table 3.4-3 of AP-42.

3.0 APPLICABLE REGULATIONS

(A). Title V Operation Permitting

In accordance with 40 C.F.R. § 71.3(a)(1), all major stationary sources are required to obtain a Title V operating permit. "Major source" is defined in 40 C.F.R. § 71.2 as, among other things, any stationary source belonging to a single major industrial grouping and that directly emits, or has the potential to emit, 100 tons per year or more of any air pollutant. Since this facility has the potential to emit greater than 100 tons per year of NOx, it is a major stationary source and, therefore, subject to Title V.

(B). Prevention of Significant Deterioration (PSD)

The EPA issued the Facility a PSD permit (No. PSD-PI-R50003-00-01) to install four internal combustion engines on December 20, 2000. In accordance with 40 C.F.R. § 71.6(a)(1), the applicable PSD permit limitations were included in this permit.

