

**STATEMENT OF BASIS**  
**Air Pollution Control**  
**Title V Permit to Operate**  
**Permit No.: V-PI-2704900084-2012-12**

The purpose of this document is to set forth the legal and factual basis for permit 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)
NRG Reliability Solutions, LLC 17685 Juniper Path, Suite 301 Lakeville, Minnesota 55044	Treasure Island Resort & Casino 5734 Sturgeon Lake Road Red Wing, Minnesota 55066 Prairie Island Indian Community

Responsible Official	Facility Contact
Phil Kairis (651) 341-2244	Vern Hollar (651) 341-2242

**(B). Facility Description**

Treasure Island Resort & Casino (the 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 issued an Air Quality Construction Permit (No. PSD-PI-R50003-00-01) to the facility on December 20, 2000, that allowed the construction of four internal combustion diesel engines and subjected the facility to the requirements of 40 C.F.R. Part 71. An initial Title V Permit to Operate was issued to the facility on February 23, 2004.

The facility commenced construction on the diesel engines on January 15, 2001. Energy Alternatives, Inc. owns and operates the engines which are installed northeast of the Treasure Island Resort & Casino at the Prairie Island Community Wastewater Treatment Facility. The engines produce electricity used for peak load management and backup power for the facility. The total generation capacity of the engines is 7.3 megawatts. Electricity generated at the facility is not sold for distribution.

On January 8, 2014, EPA received an application for a minor permit modification from NRG Reliability Solutions requesting changes to recordkeeping requirements allowing it to keep records at its office or at the facility, adding insignificant emission units that were

omitted in previous permit applications, and correcting a typographical error in the potential to emit of the source. EPA is revising the permit as a minor permit modification.

**(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 criteria pollutants from all units at the facility (EU-01, EU-02, EU-03, and EU-04) exceeds 100 tons per year for nitrogen oxides (NOx). Therefore, the facility must obtain a Title V permit.

**(E). Enforcement Issues**

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

**(F). Permit History**

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

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

On November 26, 2012, EPA issued a Title V permit renewal for the operation of four internal combustion engines. The permit became effective on December 26, 2012.

On February 25, 2013, EPA issued an administrative amendment to the Title V permit changing the name of the owner of the 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 1,800 revolutions per minute and produces shaft power of 2,563 brake horsepower. Each engine burns approximately 130.2 gallons of diesel fuel per hour when operated at capacity. The shaft power of each engine drives a 1,825 kilowatt 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 that vents 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)
Two 75-gallon diesel-fuel day tanks	40 C.F.R. § 71.5(c)(11)(ii)(A)

**(C). Potential Emissions**

Potential to Emit (PTE) Summary <sup>a,b</sup> Tons Per Year (tpy)							
Emission Unit	VOC <sup>c</sup>	NOx <sup>d</sup>	CO <sup>d</sup>	PM <sup>d</sup>	PM10 <sup>c,d</sup>	SO <sub>2</sub> <sup>d</sup>	Total HAPs <sup>c</sup>
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
<b>Total PTE</b>	<b>20.32</b>	<b>655.96</b>	<b>53.44</b>	<b>15.24</b>	<b>12.52</b>	<b>15.96</b>	<b>0.44</b>

<sup>a</sup> Calculations are based on 100 percent load and 8760 hours of operation per year.

<sup>b</sup> tons per year = emission factor (lb/hr) \* 8760 hr/year \* (1 ton/2000 lbs)

<sup>c</sup> Calculations are based on emission factors from EPA AP-42, Chapter 3.3 for large stationary diesel engines, dated 10/96.

<sup>d</sup> 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 <sub>2</sub> 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
<b>Total Projected Emissions</b>	<b>1.28</b>	<b>41.20</b>	<b>3.36</b>	<b>0.96</b>	<b>0.80</b>	<b>1.00</b>	<b>0.04</b>

\* Emission estimates are based on 550 hours of operation per year.

**(E). Hazardous Air Pollutants Summary**

Hazardous Air Pollutants Summary (per engine)				
HAP	Emission Factor lb/MMBtu	PTE <sup>a</sup> lbs/hr	PTE <sup>b</sup> tpy	Projected Emissions <sup>c</sup> 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
Naphthalene	1.30 E-04	0.00217	0.00953	0.000598
Acrolein	7.88 E-06	0.000132	0.000578	0.0000363
<b>Total HAPs</b>		<b>0.0250</b>	<b>0.109</b>	<b>0.007</b>

<sup>a</sup> lbs/hr = (130 gal/hr)\*(71 lb/gal) \* (18,390 BTU/lb) \* (10<sup>-6</sup> MMBtu)\* Emission Factor

<sup>b</sup> tpy = (lb/hr)\*(8760 hr/yr) \* (1 ton/2000 lbs)

<sup>c</sup> 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 <sup>a,b</sup> lb/MMBtu	NOx <sup>a</sup> lb/hr	CO <sup>a</sup> lb/hr	PM <sup>a</sup> lb/hr	PM10 <sup>c</sup> lb/hr	SO <sub>2</sub> <sup>d</sup> lb/hr	HAPs <sup>e,f</sup> lb/hr
EU-01 through EU-04	1.16	37.44	3.05	0.87	0.715	0.911	0.0250

<sup>a</sup> Emission factors were provided by Ziegler for a Caterpillar 3561B dry engine manifold, as stated in the permit application, and are based on 100 percent load.

<sup>b</sup> VOC measured as hydrocarbons.

<sup>c</sup> 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.

**3.0 APPLICABLE REGULATIONS**

**(A). Title V 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 any stationary source belonging to a single major industrial grouping that directly emits or has the potential to emit 100 tons per year or more of any criteria pollutant. Since this facility has the potential to emit more than 100 tons per year of NOx, it is considered a major stationary source and therefore subject to Title V.

**(B). Prevention of Significant Deterioration (PSD)**

The EPA issued a PSD permit (permit number PSD-PI-R50003-00-01) allowing the facility to install four internal combustion engines on December 20, 2000.

PSD permit modification number PSD-PI-2704900084-2012-02 modifies PSD permit number PSD-PI-R50003-00-01 by reducing the required frequency of Periodic Performance Testing for NOx emission from three years to five years. In accordance with 40 C.F.R. § 71.6(a)(1), the applicable PSD permit limitations were included in this permit.

**(C). 40 C.F.R. Part 63, Subpart ZZZZ—National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE MACT)**

In accordance with 40 C.F.R. § 63.6585, a source is subject to the RICE MACT if it operates a stationary reciprocating internal combustion engine (RICE) at an area source of hazardous air pollutant (HAP) emissions. The facility is an area source for HAP emissions because it emits less than 10 tpy of any single HAP and emits less than 25 tpy of total HAPs. For the purpose of this subpart, each of the four RICE are existing, non-

emergency, non-black start, compression ignition RICE as defined in 40 C.F.R. §§ 63.6590 and 63.6675.

The following provisions from 40 C.F.R. Part 63, Subpart ZZZZ have been referenced as the underlying requirement in several conditions within the permit:

- 40 C.F.R. § 63.6585 applies because each of the engines operated by the source are stationary RICE at an area source of HAP emissions.
- 40 C.F.R. § 63.6590 applies because the affected source is defined as any existing stationary RICE located at an area source of HAP emissions. Specifically, section 63.6590(a)(1)(iii) establishes that each engine is an existing stationary RICE because the engines were constructed before June 12, 2006.
- 40 C.F.R. § 63.6595(a)(1) applies because the source is affected by Subpart ZZZZ and operates an existing stationary compression ignition (CI) RICE at an area source of HAP emissions.
- 40 C.F.R. § 63.6603 applies because the source operates an existing stationary RICE at an area source of HAP emissions. Specifically, this provision directs the source to comply with Table 2d to 40 C.F.R. Part 63, Subpart ZZZZ.
- Entry 3 of Table 2d to 40 C.F.R. Part 63, Subpart ZZZZ applies because each engine is an existing engine located at an area source of HAP emissions and each engine is a non-emergency, non-black start CI stationary RICE greater than 500 HP.
- 40 C.F.R. § 63.6604 applies because each engine is an existing non-emergency, non-black start, diesel-fired CI stationary RICE with a site rating of more than 300 brake HP and displaces more than 30 liters per cylinder.
- 40 C.F.R. § 63.6605 applies because the source is subject to 40 C.F.R. Part 63, Subpart ZZZZ.
- 40 C.F.R. § 63.6612(a) applies because the source operates existing stationary RICE at an area source of HAP emissions.
- 40 C.F.R. § 63.6615 applies because the source must comply with carbon monoxide (CO) emission or operating limitations per 40 C.F.R. § 63.6603. Specifically, this provision references Table 3 to 40 C.F.R. Part 63, Subpart ZZZZ.
- Entry 4 of Table 3 to 40 C.F.R. Part 63, Subpart ZZZZ applies because the source operates existing, non-emergency, non-black start CI stationary RICE rated at more than 500 brake horsepower. Each engine is not a limited use stationary RICE.

- 40 C.F.R. § 63.6620(a) applies because each engine must conduct performance tests per 40 C.F.R. §§ 63.6612 and 63.6615. Specifically, this provision references Table 4 to 40 C.F.R. Part 63, Subpart ZZZZ.
- Entries 1 and 3 of Table 4 to 40 C.F.R. Part 63, Subpart ZZZZ apply to the source because the source operates stationary CI RICE and the source has the option to either limit the concentration of CO emissions in the exhaust or reduce CO emissions.
- Entries 3 and 4 of Table 5 to 40 C.F.R. Part 63, Subpart ZZZZ apply because the source operates existing, non-emergency stationary RICE at an area source of HAPs and must comply with either reducing CO emissions or limiting CO concentration in the exhaust.
- 40 C.F.R. § 63.6625(h) applies because the source operates existing stationary engines.
- 40 C.F.R. § 63.6630(a) applies because the source is subject to conditions in Table 5 of Subpart ZZZZ.
- 40 C.F.R. § 63.6640 applies because the source is subject to CO emission or operating limitations per 40 C.F.R. § 63.6603.
- 40 C.F.R. § 63.6645 applies because the source operates an existing stationary RICE at an area source of HAP emissions.
- 40 C.F.R. § 63.6650(a) applies because the source operates existing, non-emergency, non-black start stationary CI RICE of more than 300 HP at an area source of HAP and is subject to a condition in Table 7 of 40 C.F.R. Part 63, Subpart ZZZZ.
- Entry 1 of Table 7 to 40 C.F.R. Part 63, Subpart ZZZZ applies because the source operates existing, non-emergency, non-black start stationary CI RICE of more than 300 HP at an area source of HAP.
- 40 C.F.R. § 63.6655 applies because the source must comply with emission and operating limitations.
- 40 C.F.R. § 63.6660 applies because the source must maintain any records for expeditious review per 40 C.F.R. § 63.10(b) (1).
- 40 C.F.R. § 63.6675 applies because it contains definitions of specific terms used in Subpart ZZZZ.

**(D). Minor Permit Modification**

On December 2, 2013, EPA received a letter from NRG Reliability Solutions requesting an administrative permit amendment changing the location where records required by the permit are kept and to add insignificant emission units to the permit. EPA determined that the requested changes to the permit did not qualify for an administrative permit amendment since the requested revisions were not listed as one of the reasons at 40 C.F.R. § 71.7(d)(1). EPA directed NRG to instead submit the requested revisions as part of a minor permit modification application. On January 8, 2014, EPA received supplemental documents requesting a minor permit modification.

Minor permit modifications are governed by the regulations given at 40 C.F.R. § 71.7(e)(1). According to 40 C.F.R. § 71.7(e)(1)(i)(A), minor permit modification procedures may be used only for those permit modifications that:

- 1.) Do not violate any applicable requirement;
- 2.) Do not involve significant changes to existing monitoring, reporting, or recordkeeping requirements in the permit;
- 3.) Do not require or change a case-by-case determination of an emission limitation or other standard, or a source-specific determination for temporary sources or ambient impacts, or a visibility or increment analysis;
- 4.) Do not seek to establish or change a permit term or condition for which there is no corresponding underlying applicable requirement and that the source has assumed to avoid an applicable requirement to which the source would otherwise be subject;
- 5.) Are not modifications under any provision of title I of the Clean Air Act; and
- 6.) Are not required to be processed as a significant modification.

The January 8, 2014, application requested a revision to the location where air permit-related records are kept, adds insignificant emission units to the permit, and also requests the correction of a typographical error with respect to the limited VOC potential emission rate.

The revision to the location where records are kept qualifies as a minor permit modification. Although the recordkeeping revisions will change existing recordkeeping requirements in the permit, the revisions are not significant. The revisions allow the Permittee to maintain these records either at the facility or at its office. The generators in this permit are operated remotely and the facility containing the generators is unmanned except when monthly inspections occur. In light of the fact that the facility is unmanned, NRG would prefer the option to keep the required records either at the facility or at its office in Lakeville, Minnesota. NRG would still be required to keep all records required by this permit readily available for review at its office. Changes to the location where records are kept will not cause an increase or decrease in emissions and so will not violate any other applicable requirement, change case-by-case determinations of emission limitations, avoid other applicable requirements, constitute a modification under title I of the Clean Air Act, or be required to be processed as a significant modification.

NRG also provided in its application for the minor permit modification that it omitted two 75-gallon day tanks located inside the generator facility. These tanks are intermediate tanks filled from the underground diesel fuel storage tank while the generators are in operation. These day tanks are insignificant activities as described in 40 C.F.R. § 71.5(C)(11)(ii)(A) since they do not result in the emission of any air pollutant. The two 75-gallon day tanks do not have or create any additional requirements in the permit. Thus, the addition of this omitted insignificant activity to the insignificant activities list can be completed using the minor permit modification procedures.

NRG also requested the correction of a typographical error to the limited VOC PTE in permit condition 1.0(C). The statement of basis for the permit gives the limited VOC PTE as 1.28 tons per year. The permit incorrectly states the limited VOC PTE as 0.29 tons per year. Since this is a typographical error that does not change any of the applicable requirements of the permit or subject the facility to new applicable requirements, this permit revision can be completed using the minor source modification procedures.

For the reasons explained previously, the operating permit and statement of basis are being revised. The specific changes to each permit term and condition are listed for convenience here, below. Additions to existing language will be denoted in **boldfaced** font. Deleted language will be denoted using ~~strickthrough~~ font.

- 1.) The VOC table entry for “Limited potential emission – 4 engines (tpy)” in condition 1.0(c) now reads as:

Limited potential emissions – 4 engines (tpy)	<del>0.29</del> <b>1.28</b>	41.18	3.36	0.96	0.79	1.00	0.027
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- 2.) Permit condition 2.0(A)(9)(i) now reads as:

“The Permittee shall develop and provide to each facility operator training to orient staff as to the applicable terms and conditions of this permit. The Permittee shall maintain ~~onsite~~ a log of the time, date, and place, and a list of attendees for, each training session. The Permittee shall maintain at the facility **or at the main office** and make available to an authorized EPA representative, upon request, a copy of the **training log, list of attendees, and** training materials presented in the training sessions.”

- 3.) Permit condition 2.0(A)(9)(iii) now reads as:

“The Permittee shall keep a copy of this permit on file at the facility **or at the main office** at all times.”

4.) Permit condition 2.0(C)(4) now reads as:

“In accordance with the recordkeeping requirements listed in Section 7 of PSD-PI-R50003-00-01, the Permittee shall maintain a file of the records that are required to be retained by this permit at the facility **or at the main office**. Records include, but are not limited to, all calibration and maintenance records, all original continuous monitoring instrumentation data, and copies of all reports required by this permit. Monitoring records include, but are not limited to:”

- 5.) The 75-gallon day tanks have been added to the minor permit modification statement of basis. They have been added as insignificant activities pursuant to 40 C.F.R. § 71.5(c)(11)(ii)(A).
- 6.) In addition to the above changes, EPA is also correcting typographical and formatting errors on the permit cover page, the table of contents, and the page numbering of the permit. These changes do not affect any of the permit conditions.