

217/782-2113

CONSTRUCTION PERMIT

PERMITTEE

City of Red Bud Power Plant
Attn: David J. Diewald, Utility Superintendent
525 Power Street
Red Bud, Illinois 62278

Application No.: 01070001 I.D. No.: 157045AAJ
Applicant's Designation: ENG. #7, #8 Date Received: July 2, 2001
Subject: Diesel Engine Units (Power Generation)
Date Issued:
Location: Red Bud Municipal Power Plant, 525 Power Street, Red Bud,
Randolph County

Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission source(s) and/or air pollution control equipment consisting of two new distillate fuel oil-fired internal combustion engines, with nominal capacity of 2,800 kW each (Units 7 and 8) as described in the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

1. No person shall cause or allow the emission of fugitive particulate matter from any process, including any material handling or storage activity, that is visible by an observer looking generally overhead at the point beyond the property line of the source unless the wind speed is greater than 25 miles per hour, pursuant to 35 IAC 212.301 and 212.314.
- 2a. The emission of smoke or other particulate matter from the new engines each shall not exceed an opacity greater than 30 percent, pursuant to 35 IAC 212.123(a), except as allowed by 35 IAC 212.123(b) and 212.124 or specified below.
- b. The Permittee is authorized to operate the new engines in excess of the 30 percent opacity limit during startup pursuant to 35 IAC 201.262, as the Permittee has affirmatively demonstrated that all reasonable efforts will be made to minimize startup emissions, duration of individual starts, and frequency of startups. This authorization is subject to the following and may be reevaluated and revised when operating permit applications are processed for the new engines:
 - i. This authorization only extends for a period of up to two hours for a unit, following initial firing of fuel in the engine during each startup event.
 - ii. The Permittee shall take the following measures to minimize startup emissions, the duration of startups, and minimize the frequency of startups:

- A. Implementation of established startup procedures, including preheating an engine prior to startup when sufficient time is available; and
 - B. Operating the engines as peaking units.
- iii. The Permittee shall fulfill the applicable recordkeeping requirements of Condition 5(c).
- 3a. Fuels with a sulfur content greater than 0.05 weight percent on an annual average as determined below, shall not be fired in the new engines, pursuant to the Permittee's representation that the units are exempt from the Acid Rain Program by meeting the new units exemption requirement of 40 CFR 72.7(a). The new engines are subject to the Acid Rain Program provisions of 40 CFR 72.2 through 72.7 and 72.10 through 72.13.
- b. The Permittee shall use the following equation to address compliance with the above sulfur limit pursuant to 40 CFR 72.7(d)(3):

$$\% S_{\text{annual}} = \frac{\sum_{n=1}^{\text{last}} \% S_n M_n d_n}{\sum_{n=1}^{\text{last}} M_n d_n}$$

Where:

- $\% S_{\text{annual}}$ = Annual average sulfur content of the fuel burned during the year by the unit, as a percentage by weight;
- $\% S_n$ = Sulfur content of the nth sample of the fuel delivered during the year to the unit, as a percentage by weight;
- M_n = Mass of the nongaseous fuel in a delivery during the year to the unit of which the nth sample is taken, in lb; or for fuel delivered during the year to the unit continuously by pipeline, mass of the nongaseous fuel delivered starting from when the nth sample of such fuel is taken until the next sample of such fuel is taken, in lb;
- d_n = Density of the nth sample of the fuel delivered during the year to the unit, in lb per gallon; and
- n = Each sample taken of the fuel delivered during the year to the unit, taken at least once for each delivery; or, for fuel that is delivered during the year to the unit continuously by pipeline, at least once each quarter during which the fuel is delivered.

- c. The Illinois EPA shall be allowed to sample all fuels stored at the source.
- 4a. The only fuel fired in the new engines (Units 7 and 8) and existing engines (Units 1, 2, 3 and 4) shall be distillate fuel oil (No. 1 and 2 oil).
 - b. i. Total usage of fuel oil in all engines (Units 1, 2, 3, 4, 7 and 8) shall not exceed 1,117,000 gallons/year.
 - ii. Until the operating limitation in the source's current Federally Enforceable State Operating Permit (FESOP), Permit No. 73010726, is superseded by issuance of a new federally enforceable permit or otherwise ceases to be applicable, total fuel usage by the existing engines (Units 1, 2, 3 and 4) shall not exceed 447,000 gallons/year.
 - iii. Compliance with these limit shall be determined from a running total of 12 months of data.
- c. i. Emissions from the existing engines (Units 1, 2, 3 and 4) shall not exceed the following limits. These limits are based on the information provided in the application with emissions calculated using standard emission factors, and the maximum firing rates of the engines.

<u>Pollutant</u>	<u>Factors (Lb/mmBtu)</u>	<u>Hourly Limit (Lb/Hr Each)</u>			
		<u>Unit 1</u>	<u>Unit 2</u>	<u>Unit 3</u>	<u>Unit 4</u>
NO _x	3.2	105.17	49.53	105.17	152.60
CO	0.85	27.93	13.16	27.93	40.54
SO ₂	0.0505	1.66	0.78	1.66	2.47
VOM	0.09	2.96	1.39	2.96	4.29
PM	0.0697	2.29	1.08	2.29	3.32

- ii. Emissions from the new engines (Units 7 and 8) shall not exceed the following limits. These limits are based on the information provided in the application including the maximum firing rate of the new engines.

<u>Pollutant</u>	<u>Emission Factor (Lb/mmBtu)</u>	<u>Hourly Limits (Lb/Hr - Each)</u>
NO _x	3.2	105.48
CO	0.85	28.02
SO ₂	0.0505	1.66
VOM	0.09	2.97
PM	0.0697	2.30

- iii. Total annual emissions from the source shall not exceed the following limits. These limits are based on information provided in the permit application.

<u>Pollutant</u>	<u>Limit - Total of All Units (Tons/Year)</u>
NO _x	245.00
CO	65.08
SO ₂	3.87
VOM	6.90
PM	5.34

- iv. Until the emission limitations in the source's current Federally Enforceable State Operating Permit (FESOP), Permit No. 73010726, are superseded by issuance of a new federally enforceable permit or otherwise cease to be applicable, total annual emissions from the existing engines (Units 1, 2, 3 and 4) shall not exceed the following limits:

<u>Emission Limits (T/Yr - Total)</u>
98.00
26.03
1.55
2.76
2.13

- v. Compliance with the above annual limits shall be determined from a running total of 12 months of data.
- d. These limits assure that the source is not a major source pursuant to 40 CFR 52.21, the Federal rules for Prevention of Significant Deterioration (PSD). For this purpose, the permit does not address Units 5 and 6, which have been retired and permanently removed from service.
- 5a. The Permittee shall maintain the following records for the source:
- i. Records for each shipment of fuel oil received, the amount received, maximum sulfur content, and supplier;
 - ii. Records of the sulfur content of the fuel oil supply to all units, with supporting calculations using the equation in Condition 3(b); and
 - iii. Records of operation of an engine with an oil in excess of the applicable sulfur content (Condition 3), with date, duration, sulfur content of oil, and explanation.
- b. The Permittee shall maintain records of the following items to address compliance with the limits in Condition 4.
- i. Total usage of fuel for the engines (new engines and existing engines separately), i.e., gallons/month and gallons/year;

- ii. Fuel usage of individual engines or other operating data, e.g., hours of operation or megawatts generated from each engine, to allow total fuel usage, as recorded above, to be apportioned among the individual engines as necessary to calculate emissions; and
 - iii. Emissions of NO_x, CO, SO₂, VOM and PM in tons/month and tons/year from the source (facility total), with supporting calculations.
- c. The Permittee shall maintain records for each startup of each engine, that at a minimum shall include:
- i. The following information for each startup of an engine:
 - A. Date and time of startup;
 - B. Whether startup is "remote", i.e., initiated by off-site personnel or automated procedures;
 - C. Whether operating personnel for the engines or air environmental staff are on site during startup, even if startup is remote; and
 - D. A description of startup, if operating problems are identified during the startup.
 - ii. The following information for each engine when above normal opacity has been observed by source personnel as identified in (i)(C) above:
 - A. Name of observer, position and reason for being at site;
 - B. Date and duration of above normal opacity, including start time and time normal operation was achieved;
 - C. If normal operation was not achieved within 30 minutes, an explanation why normal operation could not be achieved in 30 minutes;
 - D. A detailed description of the startup, including reason for operation and an explanation why established startup procedures could not be performed, if not performed;
 - E. The nature of opacity following the end of startup or two hours of operation, whichever occurs first, and duration of operation until achievement of normal opacity or shutdown; and
 - F. Whether exceedance of Condition 2(a) may have occurred during startup, with explanation, if a qualified observer was on-site.

- d. The Permittee shall keep a maintenance and repair log for each new engine, listing each activity performed with date.
6. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least five years from the date of entry and shall be made available for inspection and copying by the Illinois EPA upon request. Any records retained in an electronic format (e.g., computer) shall be capable of being retrieved and printed on paper during normal source office hours so as to be able to respond to an Illinois EPA request for records during the course of a source inspection.
7. If there is an exceedance of the requirements of this permit as determined by the records required by this permit, the Permittee shall submit a report to the Illinois EPA's Compliance Section in Springfield, Illinois within 30 days after the exceedance. The report shall include the emissions released in accordance with the recordkeeping requirements, a copy of the relevant records, and a description of the exceedance or violation and efforts to reduce emissions and future occurrences.
8. Two copies of all required reports and notification shall be sent to:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Compliance Section (#40)
P.O. Box 19276
Springfield, Illinois 62794-9276

Telephone: 217/782-5811 Fax: 217-782-6348

and one copy shall be sent to the Illinois EPA's regional office at the following address unless otherwise indicated:

Illinois Environmental Protection Agency
Division of Air Pollution Control
2009 Mall Street
Collinsville, Illinois 62234

Telephone: 618/346-5120 Fax: 618/346-5155

9. This permit is issued based upon this source not constituting a major source for purposes of 40 CFR 52.21, Prevention of Significant Deterioration of Air Quality (PSD).
10. The Permittee is allowed to operate the new engines under this construction permit for a period of three years from the initial startup of engines or until a CAAPP permit is issued for the source, whichever occurs first.

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If you have any questions concerning this permit, please call Youra Benofamil at 217/782-2113.

Donald E. Sutton, P.E.
Manager, Permit Section
Division of Air Pollution Control

DES:YB:psj

cc: Region 3