

**PERMIT BOOK**

STATE OF MISSOURI



**DEPARTMENT OF NATURAL RESOURCES**

**MISSOURI AIR CONSERVATION COMMISSION**

**PERMIT TO CONSTRUCT**

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: **022012-002**

Project Number: 2011-11-026

Installation Number: 121-0006

Parent Company: City of La Plata

Parent Company Address: 101 South Gex, La Plata, MO 63549

Installation Name: La Plata Municipal Power Plant

Installation Address: 210 East Bartlett, La Plata, MO 63549

Location Information: Macon County, S8, T60N, R14W

Application for Authority to Construct was made for:

Two Caterpillar 3516B compression ignition diesel engines (EU-01 and EU-02) and electric generators. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

Standard Conditions (on reverse) are applicable to this permit.

Standard Conditions (on reverse) and Special Conditions are applicable to this permit.

**FEB - 6 2012**

EFFECTIVE DATE

DIRECTOR OR DESIGNEE  
DEPARTMENT OF NATURAL RESOURCES

## STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review. In the event that there is a discrepancy between the permit application and this permit, the conditions of this permit shall take precedence. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the Department's Air Pollution Control Program of the anticipated date of startup of these air contaminant sources. The information must be made available within 30 days of actual startup. Also, you must notify the Department of Natural Resources Regional office responsible for the area within which you are located within 15 days after the actual startup of these air contaminant sources.

A copy of this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources' personnel upon request.

You may appeal this permit or any of the listed special conditions to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, MO 65102, as provided in RSMo 643.075.6 and 621.250.3. If you choose to appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If you choose not to appeal, this certificate, the project review and your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant sources(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit at (573) 751-4817. If you prefer to write, please address your correspondence to the Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention: Construction Permit Unit.

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## SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

*The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (12)(A)10. "Conditions required by permitting authority."*

La Plata Municipal Power Plant  
Macon County, S8, T60N, R14W

1. Emission Limitation
  - A. La Plata Municipal Power Plant shall emit less than 40.0 tons of nitrogen oxides (NO<sub>x</sub>) in any consecutive 12-month period from the entire installation (EU-01 and EU-02).
  - B. Attachment A or equivalent forms, such as electronic forms, approved by the Air Pollution Control Program shall be used to demonstrate compliance with Special Conditions 1.A.
2. Fuel Requirement
  - A. La Plata Municipal Power Plant shall exclusively combust diesel fuel meeting the requirements of 40 CFR 80.510(b) for nonroad diesel (i.e. not exceeding 15 parts per million sulfur (ultra-low sulfur diesel fuel)) in EU-01 and EU-02.
  - B. La Plata Municipal Power Plant shall demonstrate compliance with Special Condition 2.A. by obtaining the sulfur content of the diesel for each diesel delivery from the fuel vendor or conduct their own fuel analysis to evaluate the sulfur content weight percent of the diesel.
3. Control Device Requirement-Diesel Oxidation Catalyst (DOC)
  - A. La Plata Municipal Power Plant shall control carbon monoxide (CO), hydrocarbon (HC) and total particulate matter (PM) emissions from EU-01 and EU-02 using one DOC per engine as specified in the permit application.
  - B. Each DOC shall be operated and maintained in accordance with the manufacturer's specifications and parameters established during performance testing in Special Condition 6. Each DOC shall be equipped with a continuous parameter monitoring system (CPMS) which indicates pressure drop across the DOC and inlet temperature, per 40 CFR Part 63

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#### SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

Subpart ZZZZ. These CPMS shall be located such that the Department of Natural Resources' employees may easily observe them.

- C. La Plata Municipal Power Plant shall maintain an operating and maintenance log for each DOC which shall include the following:
  - 1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and
  - 2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.
  
- 4. Control Device Requirement-Crankcase Ventilation  
La Plata Municipal Power Plant shall install and operate either a closed crankcase ventilation system or open crankcase filtration ventilation emission control system on each EU-01 and EU-02, per 40 CFR Part 63 Subpart ZZZZ.
  
- 5. Record Keeping and Reporting Requirements
  - A. La Plata Municipal Power Plant shall maintain all records required by this permit for not less than five years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request. These records shall include Material Safety Data Sheets (MSDS) for all materials used.
  
  - B. La Plata Municipal Power Plant shall report to the Air Pollution Control Program's Compliance/Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten days after the end of the month during which any record required by this permit shows an exceedance of a limitation imposed by this permit.
  
- 6. Performance Testing
  - A. La Plata Municipal Power Plant shall conduct initial and subsequent performance testing on each EU-01 and EU-02 for CO emissions.
  
  - B. These tests shall be performed within timeframes and procedures established in 40 CFR Part 63 Subpart ZZZZ.
  
  - C. La Plata Municipal Power Plant shall submit a copy of the notification of intent to conduct a performance test and a copy of the notification of compliance status including test results to the Air Pollution Control Program when submitting these documents to EPA Region VII.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE  
SECTION (5) REVIEW

Project Number: 2011-11-026  
Installation ID Number: 121-0006  
Permit Number:

La Plata Municipal Power Plant  
210 East Bartlett  
La Plata, MO 63549

Complete: November 18, 2011

Parent Company:  
City of La Plata  
101 South Gex  
La Plata, MO 63549

Macon County, S8, T60N, R14W

REVIEW SUMMARY

- La Plata Municipal Power Plant has applied for authority to install two Caterpillar 3516B compression ignition diesel engines and electric generators.
- Hazardous Air Pollutant (HAP) emissions are expected from diesel combustion.
- None of the New Source Performance Standards (NSPS) apply to the installation. 40 CFR Part 60 Subpart IIII, *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines* does not apply because original installation of the engines commenced before July 11, 2005.
- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) 40 CFR Part 61 apply to this installation.
- Maximum Achievable Control Technology (MACT) 40 CFR Part 63 Subpart ZZZZ, *National Emission Standard for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines* applies to the engines.
- A DOC is being used to control the CO and PM including particulate matter less than 10 microns in diameter (PM<sub>10</sub>) and particulate matter less than 2.5 microns in diameter (PM<sub>2.5</sub>) emissions from the engines.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of nitrogen oxides (NO<sub>x</sub>) are conditioned below the de minimis level. Potential emissions of CO are indirectly conditioned to de minimis levels. Other pollutants are indirectly conditioned and remain at de minimis levels.
- This installation is located in Macon County, an attainment area for all criteria pollutants.

- This installation is not on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation's major source level is 250 tons per year and fugitive emissions are not counted toward major source applicability.
- Ambient air quality modeling was not performed since potential emissions of the application are conditioned below de minimis levels.
- Emissions testing is required for the equipment.
- No operating permit is required for this installation.
- Approval of this permit is recommended with special conditions.

### INSTALLATION DESCRIPTION

The City of La Plata operates a peaking and emergency power plant consisting of diesel fired, compression ignition engines connected to electric generators known as La Plata Municipal Power Plant. In this permit the installation is referred to as La Plata. La Plata is an existing de minimis source under construction permits and does not have an operating permit. The following permits have been issued to La Plata Municipal Power Plant from the Air Pollution Control Program.

Table 1: Permit History

Permit Number	Description
1291-011	Construction permit for Units 6 and 7 (EP-08 and EP-09, respectively)
1291-011A	Construction permit amendment to increase annual operating hours
1196-006	Construction permit to install two diesel generators (Units 8 and 9, EP-10 and EP-11 respectively) and one fuel tank, and instate installation-wide NO <sub>x</sub> limit of 99 tons per year
OP	Basic operating permit issued under project 2002-09-009
1196-006A	Construction permit amendment to dismantle five "grandfathered" generators, lower NO <sub>x</sub> limit for remaining generators (Units 6, 7, 8, 9) to 40 tons per year, termination of operating permit

NOV #NER2012012510463876 was issued for commencing construction before a construction permit or pre-construction prohibition waiver was issued.

### PROJECT DESCRIPTION

La Plata has applied for a construction permit to install two identical Caterpillar 3516B compression ignition, diesel fueled engines, each part of individual electric generators. Emission unit 1 engine and generator serial numbers are 7RN00931 and 2SN00542, respectively. Emission unit 2 engine and generator serial numbers are 7RN00934 and 2SN00543, respectively. Each engine is rated at 2,593 horsepower and consumes 130.74 gallons of diesel per hour at 100 percent load, per the manufacturer performance data. The model year of each engine is before 2000. The engines are not 40 CFR 89 certified (the engines do not meet Tier emission standards). The engines were originally installed at the City of Owensville Power Plant (ID 073-0043).

Performance testing for NO<sub>x</sub> emissions was conducted in September 2000 on a similar engine at Dean Machinery and approved for these engines by the Air Pollution Control Program in November 2000. Each engine will be fitted with a GenAcc Inc. DOC control device. Diesel fuel will be stored in two 10,000 gallon tanks. All existing engines (Units 1 through 9) at La Plata have been removed, dismantled, or otherwise decommissioned. The newly defined installation includes only these two engines and two fuel tanks.

#### EMISSIONS/CONTROLS EVALUATION

The emission factors for PM, PM<sub>10</sub>, PM<sub>2.5</sub>, sulfur oxides (SO<sub>x</sub>), volatile organic compounds (VOC), CO, HAPs, carbon dioxide (CO<sub>2</sub>), and methane used in this analysis for the engines were obtained from the Environmental Protection Agency (EPA) document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Section 3.4, *Large Stationary Diesel and All Stationary Dual-Fuel Engines*, October 1996, source classification code (SCC) 2-02-004-01. Emission rates for PM, NO<sub>x</sub>, hydrocarbons as VOC, and CO were provided in the Caterpillar “not to exceed data”, however they were not used for this review as the AP-42 emission factors represent a more conservative approach and there is performance testing for NO<sub>x</sub>.

The emission rate for NO<sub>x</sub> used in this analysis for the engines was obtained from the Dean Machinery performance test. The tested NO<sub>x</sub> emission rate is 50.69 pounds per hour while the Caterpillar “not to exceed data” is 30.6 pounds per hour. The emission factor for nitrous oxide (N<sub>2</sub>O) used in this analysis for the engines was obtained from the EPA document, *Climate Leaders Greenhouse Gas Inventory Protocol Core Module Guidance, Direct Emissions from Stationary Combustion Sources*, May 2008. VOC emissions from the fuel tanks were calculated using the EPA program, *TANKS* version 4.0.9d.

La Plata is required by MACT Subpart ZZZZ to either limit CO concentration in the engines’ exhaust or reduce CO emissions by 70 percent or more. The DOC is guaranteed by the manufacturer to reduce CO and hydrocarbon emissions by 70 percent each and PM emissions by 10 percent. The portion of affected PM emissions is incompletely combusted hydrocarbons as condensable PM from the diesel fuel. For this review, VOC emissions were assumed to be equal to hydrocarbon emissions.

CO emission reductions will be verified by performance testing each engine, per MACT Subpart ZZZZ. Also, MACT requires the use of diesel fuel not exceeding 15 parts per million (ppm) sulfur. The MACT also requires catalyst pressure drop and temperature to be continuously monitored. Continued compliance is demonstrated through performance tests every 8,760 hours of operation or 3 years, whichever is less. Notification of intent to conduct a performance test must be submitted to EPA Region VII and a copy to the Air Pollution Control Program 60 days prior to the proposed test date. The initial performance test must be conducted within 180 days after the compliance date of May 3, 2013. Notification of compliance status, including the test results, must be submitted to EPA Region VII and a copy to the Air Pollution Control Program before close of business on the 60<sup>th</sup> day following completion of the test. For complete requirements, refer to MACT Subpart ZZZZ.

Greenhouse gas emissions were calculated using the 100 year global warming potentials for CO, methane, and N<sub>2</sub>O of 1, 21, and 310, respectively. The increase in CO<sub>2</sub> from the oxidation of CO and hydrocarbons was calculated using mass balance. The total increase in CO<sub>2</sub> for the project from the oxidation catalysts is 67.82 tons per year. Total fuel tanks' VOC emissions for the project are 0.01 tons per year.

Existing potential emissions are cited from permit 1196-006A. Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8,760 hours per year). The new installation conditioned potential represents the voluntary NO<sub>x</sub> limit to avoid modeling at the time of permit issuance. As the project equipment are the only emission units at the installation, limiting their emissions limits the entire installation. The following table provides an emissions summary for this project.

Table 2: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions (2010 EIQ)	Potential Emissions of the Application	New Installation Conditioned Potential
PM	25.0	N/D	N/D	9.84	0.89
PM <sub>10</sub>	15.0	N/D	N/D	8.09	0.73
PM <sub>2.5</sub>	10.0	N/D	N/D	7.85	0.71
SO <sub>x</sub>	40.0	N/D	N/D	0.24	0.02
NO <sub>x</sub>	40.0	< 40.0	0.1	444.04	< 40.0
VOC	40.0	N/D	0.01	3.82	0.34
CO	100.0	N/D	0.02	40.02	3.60
HAPs	10.0/25.0	N/D	N/D	0.25	0.02
CO <sub>2</sub>	N/A	N/D	N/D	25,962.60	2,338.74
Methane	N/A	N/D	N/D	1.27	0.11
N <sub>2</sub> O	N/A	N/D	N/D	0.21	0.02
CO <sub>2</sub> e	<sup>1</sup> 75,000/100,000	N/A	N/D	26,053.65	2,346.94

N/A = Not Applicable; N/D = Not Determined

<sup>1</sup> Prevention of Significant Deterioration (PSD) level

### PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of NO<sub>x</sub> are conditioned below the de minimis level. Potential emissions of CO are indirectly conditioned to de minimis levels. Other pollutants are indirectly conditioned and remain at de minimis levels.

### APPLICABLE REQUIREMENTS

La Plata Municipal Power Plant shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these

emission standards, based on information submitted in the application, has been verified at the time this application was approved.

#### GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110
- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170
- *Restriction of Emission of Odors*, 10 CSR 10-6.165

#### SPECIFIC REQUIREMENTS

- *MACT Regulations*, 10 CSR 10-6.075, *National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*, 40 CFR Part 63, Subpart ZZZZ
- *Restriction of Emission of Sulfur Compounds*, 10 CSR 10-6.260. The engines are required to combust diesel fuel not exceeding 15 ppm sulfur and will be in compliance with the SO<sub>x</sub> limits in this rule.

#### STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, I recommend this permit be granted with special conditions.

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David Little  
Environmental Engineer

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Date

#### PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated November 18, 2011, received November 18, 2011, designating City of La Plata as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Northeast Regional Office Site Survey, dated December 9, 2011.



Mr. Dickie Brown  
City Administrator  
City of La Plata  
101 South Gex  
La Plata, MO 63549

RE: New Source Review Permit - Project Number: 2011-11-026

Dear Mr. Brown:

Enclosed with this letter is your permit to construct. Please study it carefully. Also, note the special conditions on the accompanying pages. The document entitled, "Review of Application for Authority to Construct," is part of the permit and should be kept with this permit in your files. Operation in accordance with these conditions and your new source review permit application is necessary for continued compliance. The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri.

If you have any questions regarding this permit, please do not hesitate to contact David Little, at the Department's Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or at (573) 751-4817. Thank you for your attention to this matter.

Sincerely,

**AIR POLLUTION CONTROL PROGRAM**

Susan Heckenkamp  
New Source Review Unit Chief

SH:dll

Enclosures

c: Northeast Regional Office  
PAMS File: 2011-11-026

Permit Number: