

**Commonwealth of Kentucky  
Energy and Environment Cabinet  
Department for Environmental Protection  
Division for Air Quality  
300 Sower Boulevard, 2<sup>nd</sup> Floor  
Frankfort, Kentucky 40601  
(502) 564-3999**

**AIR QUALITY PERMIT  
Issued under 401 KAR 52:040**

**Permittee Name:** East Kentucky Power Cooperative, Inc.  
**Mailing Address:** 4775 Lexington Road  
Winchester, KY 40392-0707

**Source Name:** East Kentucky Power Cooperative, Inc.-Glasgow  
Regional Landfill LGTE Site  
**Mailing Address:** 4775 Lexington Road, Winchester, KY 40392

**Source Location:** Winchester, Kentucky

**Permit ID:** S-23-083  
**Agency Interest #:** 121035  
**Activity ID:** APE20230001  
**Review Type:** Minor Source, Operating  
**Source ID:** 21-009-00102

**Regional Office:** Bowling Green Regional Office  
2642 Russellville Road  
Bowling Green, KY 42101  
(270) 746-7475

**County:** Barren

**Application**  
**Complete Date:** October 23, 2023  
**Issuance Date:** February 22, 2024  
**Expiration Date:** February 22, 2034

*Rick Shewekah*

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**For Michael J. Kennedy, P.E.  
Director  
Division for Air Quality**

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Permit	Permit Type	Activity#	Complete Date	Issuance Date	Summary of Action
S-23-083	Renewal	APE20230001	10/23/2023	2/22/2024	Permit Renewal

## **SECTION A - PERMIT AUTHORIZATION**

Pursuant to a duly submitted application the Kentucky Energy and Environment Cabinet (Cabinet) hereby authorizes the operation of the equipment described herein in accordance with the terms and conditions of this permit. This permit was issued under the provisions of Kentucky Revised Statutes (KRS) Chapter 224 and regulations promulgated pursuant thereto.

The permittee shall not construct, reconstruct, or modify any affected facilities without first submitting a complete application and receiving a permit for the planned activity from the permitting authority, except as provided in this permit or in 401 KAR 52:040, State-origin permits.

Issuance of this permit does not relieve the permittee from the responsibility of obtaining any other permits, licenses, or approvals required by the Cabinet or any other federal, state, or local agency.

## **SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS**

### **Emission Unit EU01                      Stationary SI Landfill Gas Generator (01)**

#### **Description:**

Model:	Caterpillar G3516 SI RICE
Rated Capacity:	1412 hp
Fuel:	Treated Landfill Gas
Construction Commenced	1/1/2014

#### **APPLICABLE REGULATIONS:**

**401 KAR 60:005 Section 2(2)(eeee)**, 40 C.F.R. 60.4230 to 60.4248, Tables 1 to 4 (Subpart JJJJ), Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

**401 KAR 63:002 Section 2(4)(eeee)**, 40 C.F.R. 63.6580 to 63.6675, Tables 1a to 8, and Appendix A (Subpart ZZZZ), National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

#### **NON-APPLICABLE REGULATIONS:**

**401 KAR 60:005 Section 2(2)(yyy)**, 40 C.F.R. 60.750 to 60.759 (Subpart WWW), Standards of Performance for Municipal Solid Waste Landfills that commenced Construction, Reconstruction, or Modification After July 17, 2014

**401 KAR 63:002 Section 2(4)(hhh)**, 40 C.F.R. 63.1930 to 63.1990, Table 1 (Subpart AAAA), National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills

#### **1. Operating Limitations:**

- a. The permittee shall:
  - i. Purchase or combust in the engine only treated landfill gas that has been filtered, de-watered, and compressed; and
  - ii. Use the treated landfill gas only as a fuel, and venting of treated landfill gas from the treatment system to the ambient air is not allowed [401 KAR 52:040, Section 10].

#### **Compliance Demonstration Method:**

Compliance shall be demonstrated according to **5. Recordkeeping Requirements** b.

- b. A new or reconstructed stationary RICE located at an area source must meet the requirements of 40 CFR 63, Subpart ZZZZ by meeting the requirements of 40 CFR 60, Subpart JJJJ for spark ignition engines. No further requirements apply to such engines under 40 CFR 63, Subpart ZZZZ [40 CFR 63.6590(c)].
- c. The permittee shall operate and maintain stationary SI ICE that achieve the emission standards as required in 40 CFR 60.4233 over the entire life of the engine. [40 CFR 63.6625(c)].

#### **2. Emission Limitations:**

The permittee shall comply with the applicable emission standards in 40 CFR 60, Subpart JJJJ Table 1 [40 CFR 60.4233(e)]. Owners and operators of stationary non-certified SI engines may choose to comply with the emission standards in units of either g/HP-hr or ppmvd at 15 percent O<sub>2</sub>.

**SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)**

Engine Type and Fuel	Maximum Engine Power	Manufacture Date	Emission Standards					
			g/hp-hr			ppmvd at 15% O <sub>2</sub>		
			NO <sub>x</sub>	CO	VOC	NO <sub>x</sub>	CO	VOC
Landfill/Digester Gas (except lean burn 500≤hp≤1,350)	hp≥1,350	7/1/2010	2.0	5.0	1.0	150	610	80

**Compliance Demonstration Method:**

Compliance shall be demonstrated by adhering to **3. Testing Requirements** and **5. Recordkeeping Requirements** [40 CFR 60.4243(b)(2)].

**3. Testing Requirements:**

- a. The permittee shall conduct performance testing every 8,760 hours of operation or 3 years, whichever comes first [40 CFR 60.4243(b)(2)(ii)].
- b. The permittee shall conduct each performance tests within 10 percent of 100 percent peak (or the highest achievable) load and according to the requirements in 40 CFR 60.8 and under the specific conditions that are specified by 40 CFR 60, Subpart JJJJ Table 2 [40 CFR 60.4244(a)]:

Emissions	Test Methods
Measure <b>NO<sub>x</sub></b> at the exhaust of the stationary internal combustion engine	Method 7E of 40 CFR 60, Appendix A-4; ASTM Method D6522-00 (Reapproved 2005); Method 320 of 40 CFR 63, Appendix A; or ASTM Method D6348-03
Measure <b>CO</b> at the exhaust of the stationary internal combustion engine	Method 10 of 40 CFR 60, Appendix A-4; ASTM Method D6522-00 (Reapproved 2005); Method 320 of 40 CFR 63, Appendix A; or ASTM Method D6348-03
Measure <b>VOC</b> at the exhaust of the stationary internal combustion engine	Methods 25A and 18 of 40 CFR 60, Appendices A-6 and A-7; Method 25A with the use of a methane cutter as described in 40 CFR 1065.265; Method 320 of 40 CFR 63, Appendix A; ASTM Method D6348-03, or an alternate method approved by the EPA

- c. The permittee shall not conduct performance tests during periods of startup, shutdown, or malfunction, as specified in 40 CFR 60.8(c). If the stationary SI internal combustion engine is non-operational, the permittee does not need to start the engine solely to conduct a performance test; however, the permittee shall conduct the performance test immediately upon startup of the engine [40 CFR 60.4244(b)].
- d. The permittee shall conduct three separate test runs for each performance test required as specified in 40 CFR 60.8(f). Each test run shall be conducted within 10 percent of 100 percent peak (or the highest achievable) load and last at least 1 hour [40 CFR 60.4244(c)].
- e. To determine compliance with the NO<sub>x</sub> mass per unit output emission limitation, convert the concentration of NO<sub>x</sub> in the engine exhaust using the following equation [40 CFR 60.4244(d)]:

## SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

$$ER = \frac{C_d \times 1.912 \times 10^{-3} \times Q \times T}{HP - hr} \quad (\text{Eq. 1})$$

Where:

ER = emission rate of NO<sub>x</sub> in g/hp-hr

C<sub>d</sub> = measured NO<sub>x</sub> concentration in parts per million by volume (ppmv)

1.912×10<sup>-3</sup> = conversion constant for ppm NO<sub>x</sub> to grams per standard cubic meter at 20°C

Q = stack gas volumetric flow rate, in standard cubic meter per hour, dry basis

T = time of test run, in hours

HP-hr = brake work of the engine, horsepower-hour (hp-hr)

- f. To determine compliance with the CO mass per unit output emission limitation, convert the concentration of CO in the engine exhaust using the following equation [40 CFR 60.4244(e)]:

$$ER = \frac{C_d \times 1.164 \times 10^{-3} \times Q \times T}{HP - hr} \quad (\text{Eq. 2})$$

Where:

ER = emission rate of CO in g/hp-hr

C<sub>d</sub> = measured CO concentration in ppmv

1.164×10<sup>-3</sup> = conversion constant for ppm CO to grams per standard cubic meter at 20°C

Q = stack gas volumetric flow rate, in standard cubic meters per hour, dry basis

T = time of test run, in hours

HP-hr = brake work of the engine, horsepower-hour (hp-hr)

- g. For the purposes of 40 CFR 60, Subpart JJJJ, when calculating emissions of VOC, emissions of formaldehyde should not be included. To determine compliance with the VOC mass per unit output emission limitation, convert the concentration of VOC in the engine exhaust using the following equation [40 CFR 60.4244(f)]:

$$ER = \frac{C_d \times 1.833 \times 10^{-3} \times Q \times T}{HP - hr} \quad (\text{Eq. 3})$$

Where:

ER = emission rate of VOC in g/hp-hr

C<sub>d</sub> = VOC concentration measured as propane in ppmv

1.833×10<sup>-3</sup> = conversion constant for ppm VOC measured as propane, to grams per standard cubic meter at 20°C

Q = stack gas volumetric flow rate, in standard cubic meters per hour, dry basis

T = time of test run, in hours

HP-hr = brake work of the engine, horsepower-hour (hp-hr)

- h. If the permittee chooses to measure VOC emissions using either Method 18 of 40 CFR 60, Appendix A or Method 320 of 40 CFR 63, Appendix A, then it has the option of correcting the measured VOC emissions to account for the potential differences in measured values between these methods and Method 25A. The results from Method 18 and Method 320 can be corrected for response factor differences using the following two equations: [40 CFR 60.4244(g)].

$$RF_i = \frac{C_{Mi}}{C_{Ai}}$$

Where:

**SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)**

$RF_i$  = Response factor of compound i when measured with EPA Method 25A.

$C_{Mi}$  = Measured concentration of compound i in ppmv as carbon.

$C_{Ai}$  = True concentration of compound i in ppmv as carbon.

$$C_{icorr} = RF_i \times C_{imeas}$$

Where:

$C_{icorr}$  = Concentration of compound i corrected to the value that would have been measured by EPA Method 25A, ppmv as carbon.

$C_{imeas}$  = Concentration of compound i measured by EPA Method 320, ppmv as carbon.

The corrected VOC concentration can then be placed on a propane basis using the following equation.

$$C_{P_{eq}} = 0.6098 \times C_{icorr}$$

Where:

$C_{P_{eq}}$  = Concentration of compound i in mg of propane equivalent per DSCM

**SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)****4. Monitoring Requirements:**

The permittee shall monitor the volumetric flow rate of landfill gas into the site daily with a fuel meter [401 KAR 52:040, Section 10].

**5. Recordkeeping Requirements:**

- a. The permittee shall maintain records of daily fuel use for landfill gas-to-energy as monitored using the installed fuel meter [401 KAR 52:040, Section 10].
- b. The permittee shall maintain records that demonstrate that the fuel burned was treated landfill gas that had been filtered, de-watered, and compressed [401 KAR 52:040, Section 10].
- c. The permittee shall keep a maintenance plan and records of conducted maintenance [40 CFR 60.4243(b)(2)(ii) and 40 CFR 60.4245(a)(2)].
- d. The permittee shall maintain records of all notifications submitted to comply with 40 CFR 60, Subpart JJJJ and all documentation supporting any notification [40 CFR 60.4245(a)(1)].

**6. Reporting Requirements:**

- a. The permittee shall submit an initial notification as required in 40 CFR 60.7(a)(1) and must include the information in 40 CFR 60.4245(c) [40 CFR 60.4245(c)].
- b. The permittee shall submit a copy of each performance test as conducted in 40 CFR 60.4244 within 60 days after the test has been completed. Performance test reports using EPA Method 18, Method 320, or ASTM D6348-03 (incorporated by reference – see 40 CFR 60.17) to measure VOC require reporting of all QA/QC data. For Method 18, report results from Method 18 sections 8.4 and 11.1.1.4; for Method 320, report results from Method 320 sections 8.6.2, 9.0, and 13.0; and for ASTM D6348-03, report results of all QA/QC procedures in ASTM D6348-03 Annexes 1-7 [40 CFR 60.4245(d)].



## SECTION C - GENERAL CONDITIONS

### 1. Administrative Requirements

- a. The permittee shall comply with all conditions of this permit. Noncompliance shall be a violation of 401 KAR 52:040, Section 3(1)(b), and is grounds for enforcement action including but not limited to the termination, revocation and reissuance, or revision of this permit.
- b. This permit shall remain in effect for a fixed term of ten (10) years following the original date of issuance. Permit expiration shall terminate the source's right to operate unless a timely and complete renewal application has been submitted to the Division at least six months prior to the expiration date of the permit. Upon a timely and complete submittal, the authorization to operate within the terms and conditions of this permit, including any permit shield, shall remain in effect beyond the expiration date, until the renewal permit is issued or denied by the Division. [401 KAR 52:040, Section 15]
- c. Any condition or portion of this permit which becomes suspended or is ruled invalid as a result of any legal or other action shall not invalidate any other portion or condition of this permit [Section 1a-11 of the *Cabinet Provisions and Procedures for Issuing State-Origin Permits* incorporated by reference in 401 KAR 52:040, Section 23].
- d. Pursuant to materials incorporated by reference by 401 KAR 52:040, this permit may be revised, revoked, reopened, reissued, or terminated for cause. The filing of a request by the permittee for any permit revision, revocation, reissuance, or termination, or of a notification of a planned change or anticipated noncompliance shall not stay any permit condition [Section 1a-4, 5, of the *Cabinet Provisions and Procedures for Issuing State-Origin Permits* incorporated by reference in 401 KAR 52:040, Section 23].
- e. This permit does not convey property rights or exclusive privileges [Section 1a-8 of the *Cabinet Provisions and Procedures for Issuing State-Origin Permits* incorporated by reference in 401 KAR 52:040, Section 23].
- f. Nothing in this permit shall alter or affect the liability of the permittee for any violation of applicable requirements prior to or at the time of permit issuance [401 KAR 52:040, Section 11(3)].
- g. This permit shall be subject to suspension at any time the permittee fails to pay all fees within 90 days after notification as specified in 401 KAR 50:038, Air emissions fee. The permittee shall submit an annual emissions certification pursuant to 401 KAR 52:040, Section 20.
- h. All previously issued permits to this source at this location are hereby null and void.

### 2. Recordkeeping Requirements

- a. Records of all required monitoring data and support information, including calibrations, maintenance records, and original strip chart recordings, and copies of all reports required by the Division for Air Quality, shall be retained by the permittee for a period of at least five years and shall be made available for inspection upon request by any duly authorized

**SECTION C - GENERAL CONDITIONS (CONTINUED)**

representative of the Division for Air Quality [401 KAR 52:040, Section 3(1)(f), and Section 1b-IV-2 of the *Cabinet Provisions and Procedures for Issuing State-Origin Permits* incorporated by reference in 401 KAR 52:040, Section 23].

- b. The permittee shall perform compliance certification and recordkeeping sufficient to assure compliance with the terms and conditions of the permit. Documents, including reports, shall be certified by a responsible official pursuant to 401 KAR 52:040, Section 21.

**3. Reporting Requirements**

- a. In accordance with the provisions of 401 KAR 50:055, Section 1, the permittee shall notify the Regional Office listed on the front of this permit concerning startups, shutdowns, or malfunctions as follows:
  - (1) When emissions during any planned shutdowns and ensuing startups will exceed the standards, notification shall be made no later than three (3) days before the planned shutdown, or immediately following the decision to shut down, if the shutdown is due to events which could not have been foreseen three (3) days before the shutdown.
  - (2) When emissions due to malfunctions, unplanned shutdowns and ensuing startups are or may be in excess of the standards, notification shall be made as promptly as possible by telephone (or other electronic media) and shall be submitted in writing upon request.
- b. The permittee shall promptly report deviations from permit requirements, including those attributable to upset conditions as defined in the permit, the probable cause of such deviations, and any corrective actions or preventive measures taken shall be submitted to the Regional Office listed on the front of this permit. Where the underlying applicable requirement contains a definition of prompt or otherwise specifies a time frame for reporting deviations, that definition or time frame shall govern. Where the underlying applicable requirement does not identify a specific time frame for reporting deviations, prompt reporting, as required by Sections 1b-V, 3 and 4 of the *Cabinet Provisions and Procedures for Issuing State Origin Permits* incorporated by reference in 401 KAR 52:040, Section 23 shall be defined as follows:
  - (1) For emissions of a hazardous air pollutant or a toxic air pollutant (as identified in an applicable regulation) that continue for more than an hour in excess of permit requirements, the report must be made within 24 hours of the occurrence.
  - (2) For emissions of any regulated air pollutant, excluding those listed in C.3.a.(1), that continue for more than two hours in excess of permit requirements, the report must be made within 48 hours.
  - (3) All deviations from permit requirements, including those previously reported, shall be included in the semiannual report required C.3.d.
- c. The permittee shall furnish information requested by the Cabinet to determine if cause exists for modifying, revoking and reissuing, or terminating the permit; or to determine compliance with the permit [Section 1a-6 of the *Cabinet Provisions and Procedures for Issuing State-Origin Permits* incorporated by reference in 401 KAR 52:040, Section 23].

**SECTION C - GENERAL CONDITIONS (CONTINUED)**

- d. Summary reports of monitoring required by this permit shall be submitted to the Regional Office listed on the front of this permit at least every six (6) months during the life of this permit. For emission units that were still under construction or which had not commenced operation at the end of the 6-month period covered by the report and are subject to monitoring requirements in this permit, the report shall indicate that no monitoring was performed during the previous six months because the emission unit was not in operation. The summary reports are due January 30th and July 30th of each year. All deviations from permit requirements shall be clearly identified in the reports. All reports shall be certified by a responsible official pursuant to 401 KAR 52:040, Section 21.

**4. Inspections**

In accordance with the requirements of 401 KAR 52:040, Section 3(1)(f), the permittee shall allow authorized representatives of the Cabinet to perform the following during reasonable times. Reasonable times are defined as during all hours of operation, during normal office hours, or during an emergency:

- a. Enter upon the premises to inspect any facility, equipment (including air pollution control equipment), practice, or operation.
- b. To access and copy any records required by the permit.
- c. Inspect, at reasonable times, any facilities, equipment (including monitoring and pollution control equipment), practices, or operations required by the permit.
- d. Sample or monitor, at reasonable times, substances or parameters to assure compliance with the permit or any applicable requirements.

**5. Emergencies/Enforcement Provisions**

- a. The permittee shall not use as defense in an enforcement action, the contention that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance [Section 1a-3 of the *Cabinet Provisions and Procedures for Issuing State-Origin Permits* incorporated by reference in 401 KAR 52:040, Section 23].
- b. An emergency shall constitute an affirmative defense to an action brought for the noncompliance with the technology-based emission limitations if the permittee demonstrates through properly signed contemporaneous operating logs or relevant evidence that:
  - (1) An emergency occurred and the permittee can identify the cause of the emergency;
  - (2) The permitted facility was at the time being properly operated;
  - (3) During an emergency, the permittee took all reasonable steps to minimize levels of emissions that exceeded the emissions standards or other requirements in the permit; and
  - (4) The permittee notified the Division as promptly as possible and submitted written notice of the emergency to the Division within two working days after the time when emission limitations were exceeded due to the emergency and included a description of the emergency, steps taken to mitigate emissions, and corrective actions taken.

**SECTION C - GENERAL CONDITIONS (CONTINUED)**

- c. Emergency provisions listed in General Condition 5.b are in addition to any emergency or upset provision contained in an applicable requirement [401 KAR 52:040, Section 22(3)].
- d. In an enforcement proceeding, the permittee seeking to establish the occurrence of an emergency shall have the burden of proof [401 KAR 52:040, Section 22(2)].

**6. Compliance**

- a. Periodic testing or instrumental or non-instrumental monitoring, which may consist of record keeping, shall be performed to the extent necessary to yield reliable data for purposes of demonstration of continuing compliance with the conditions of this permit.
- b. Pursuant to 401 KAR 52:040, Section 19, the permittee shall certify compliance with the terms and conditions contained in this permit by January 30th of each year, by completing and returning a Compliance Certification Form (DEP 7007CC) (or an approved alternative) to the Regional Office listed on the front of this permit in accordance with the following requirements:
  - (1) Identification of the term or condition;
  - (2) Compliance status of each term or condition of the permit;
  - (3) Whether compliance was continuous or intermittent;
  - (4) The method used for determining the compliance status for the source, currently and over the reporting period, and
  - (5) For an emissions unit that was still under construction or which has not commenced operation at the end of the 12-month period covered by the annual compliance certification, the permittee shall indicate that the unit is under construction and that compliance with any applicable requirements will be demonstrated within the timeframes specified in the permit.
  - (6) The certification shall be submitted by January 30th of each year. Annual compliance certifications shall be sent to the Regional Office listed on the front of this permit
- c. Permit Shield - A permit shield shall not protect the owner or operator from enforcement actions for violating an applicable requirement prior to or at the time of permit issuance. Compliance with the conditions of this permit shall be considered compliance with all:
  - (1) Applicable requirements that are included and specifically identified in this permit; or
  - (2) Non-applicable requirements expressly identified in this permit [401 KAR 52:040, Section 11].

**7. Construction Requirements:**

No construction is authorized by this permit (S-23-083).

**SECTION D - INSIGNIFICANT ACTIVITIES**

The following listed activities have been determined to be insignificant activities for this source pursuant to 401 KAR 52:040, Section 6. Although these activities are designated as insignificant the permittee must comply with the applicable regulation. Process and emission control equipment at each insignificant activity subject to an opacity standard shall be inspected monthly and a qualitative visible emissions evaluation made. Results of the inspection, evaluation, and any corrective action shall be recorded in a log.

<u>Description</u>	<u>Generally Applicable Regulation</u>
1. 500 –gallon storage tank for lube oil	N/A
2. 500 – gallon waste oil tank	N/A