

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: 042010-011 Project Number: 2010-01-048

Parent Company: Courtney Ridge Landfill, LLC

Parent Company Address: 2001 N MO Hwy 291, Sugar Creek, MO 64058

Installation Name: Courtney Ridge Landfill, LLC

Installation Address: 2001 N MO Hwy 291, Sugar Creek, MO 64058

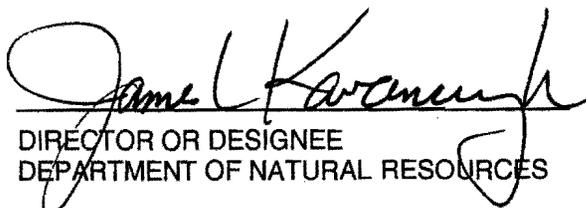
Location Information: Jackson County, S18/19/13/24, T50N, R31W/32W

Application for Authority to Construct was made for:
2000 standard cubic feet per minute (SCFM) flare, to be used for the destruction of landfill gas (LFG). This review was conducted in accordance with Section (6), 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.

APR 19 2010

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 departments' Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available not more than 60 days but at least 30 days in advance of this date. 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 start up of this (these) air contaminant source(s).

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 source(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.

Page No.	3
Permit No.	
Project No.	2010-01-048

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."

Courtney Ridge Landfill, LLC
Jackson County, S18/19/13/24, T50N, R31W/32W

1. **Superseding Condition**
The conditions of this permit supersede all special conditions found in the previously issued construction permit 042009-004 issued by the Air Pollution Control Program.
2. **Emission Limitation**
 - A. Courtney Ridge Landfill, LLC shall emit less than 250.0 tons of carbon monoxide (CO) from the flares (EP-10 and EP-11) in any consecutive 12-month period.
 - B. Attachment A, or an equivalent form approved by the Air Pollution Control Program shall be used to demonstrate compliance with Special Conditions 2.A. Flow rate measurements used to demonstrate compliance with Special Condition 2.A. must be recorded in units of SCFM. Courtney Ridge Landfill, LLC shall maintain all records required by this permit for not less than five (5) years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request.
 - C. Courtney Ridge Landfill, LLC shall report to the Air Pollution Control Program's Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten (10) days after the end of the month during which the records from Special Condition Number 2.B. indicate that the source exceeds the limitations of Special Conditions Number 2.A.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (6) REVIEW

Project Number: 2010-01-048
Installation ID Number: 095-0267
Permit Number:

Courtney Ridge Landfill, LLC
2001 N MO Hwy 291
Sugar Creek, MO 64058

Complete: January 22, 2010

Parent Company:
Courtney Ridge Landfill, LLC
2001 N MO Hwy 291
Sugar Creek, MO 64058
Jackson County, S18/19/13/24, T50N, R31W/32W

REVIEW SUMMARY

- Courtney Ridge Landfill, LLC has applied for authority to construct a 2000 standard cubic feet per minute (SCFM) Landfill Flare (EP-11).
- Hazardous Air Pollutant (HAP) emissions are expected from the proposed equipment.
- Subpart WWW of the New Source Performance Standards (NSPS), *Standards of Performance for Municipal Solid Waste Landfills*, applies to the landfill. Subpart A, Section 60.18, *General Control Device Requirements*, applies to the flares, EP-10 and EP-11.
- The Maximum Achievable Control Technology (MACT) standard, 40 CFR Part 63, Subpart AAAA, *National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills*, applies to the installation.
- A 2000 SCFM flare is being installed to control landfill gas (LFG) emissions from the landfill.
- This review was conducted in accordance with Section (6) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of carbon monoxide (CO) are above the major source threshold. Courtney Ridge has requested an installation wide limit less than 250.0 tons of CO in any consecutive 12 months.
- This installation is located in Jackson County, an attainment area for all criteria air pollutants.
- This installation is not on the List of Named Installations [10 CSR 10-6.020(3)(B), Table 2].

- Ambient air quality modeling was performed to determine the ambient impact of CO.
- Emissions testing is required as outlined in NSPS, Subpart WWW, *Standards of Performance for Municipal Solid Waste Landfills*.
- Revision to your Part 70 Operating Permit application is required for this installation within 1 year of equipment startup.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Courtney Ridge Landfill, LLC operates an existing municipal solid waste (MSW) landfill (installation ID 095-0267) in Sugar Creek, Missouri. The landfill has been in operation since 1996. The landfill utilizes a gas collection and control system to minimize the possibility of LFG migration. The collected LFG is either combusted in one of two existing flares (EP-9 and EP-10) or is piped to Lafarge’s portland cement facility where it is used as a supplemental fuel in its kiln. The installation will be considered a minor source for CO in regards to construction permitting. The installation received a Part 70 operating permit (number OP1999-100A) in July of 1999.

The following permits have been issued to Courtney Ridge Landfill, LLC from the Air Pollution Control Program.

Table 1: Permit History

Permit Number	Description
042009-004	Construction of a 2000 SCFM Flare (EP-10)
012004-003	Construction of 1650 SCFM Flare (EP-9)

PROJECT DESCRIPTION

Courtney Ridge proposes installing a 2000 SCFM flare to replace the existing 1650 SCFM flare (EP-9). This flare (EP-11) will operate in conjunction with the recently permitted 2000 SCFM flare (EP-10), and draw from the current LFG collection system. In order to demonstrate compliance with the emission limit found in this permit, Courtney Ridge will operate monitoring equipment that will record actual temperature and pressure and calculate LFG flow rate in SCFM. Also, the LFG is conditioned for moisture removal before reaching the flares, thus SCF measured by the landfill is considered dry SCF (DSCF).

EMISSIONS/CONTROLS EVALUATION

The emission factors and control efficiencies used in this analysis were obtained from the Environmental Protection Agency (EPA) document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Section 2.4, "Municipal Solid Waste Landfills," November 1998 and the EPA software LandGEM version 3.02.

Emissions from the landfill were calculated using the LandGEM software. LandGEM calculates the total LFG generated by the landfill each year and provides emission rates of the LFG constituents. In order to calculate the LFG emissions, Courtney Ridge Landfill, LLC provided the actual waste accepted from 1996 to 2007 and estimated a 3% annual growth rate for waste accepted until 2021 when the landfill will reach its capacity. In addition to the waste accepted, Courtney Ridge Landfill, LLC provided parameters for the potential methane generation capacity, the methane generation rate and concentrations of nonmethane organic compounds (NMOC) and methane in the LFG. Courtney Ridge Landfill, LLC selected the inventory conventional defaults of 100 m³/Mg and 0.04 year⁻¹ for the potential methane generation capacity and the methane generation rate, respectively. These are the values suggested in the LandGEM users guide for calculating potential emissions of LFG. Courtney Ridge Landfill, LLC selected the inventory co-disposal NMOC concentration of 2,400 parts per million volume (ppmv), which is the value recommended in the LandGEM users guide for landfills that accept both municipal solid waste and construction waste, and a methane content of 55% by volume, which is the typical steady state volume as stated in AP-42 Section 2.4.

Using the information described above, LandGEM calculated the annual LFG emissions for the time period from 1996 to 2136. The maximum LFG emissions will occur in 2021 and the landfill will emit 81,500 tons of LFG. LandGEM also calculates emissions of methane, carbon dioxide, total NMOC and individual hazardous air pollutants (HAPs). The LFG is captured by a collection system and routed to either the flares or to Lafarge's portland cement facility. A capture efficiency of 75% was used for the collection system as stated in AP-42 Section 2.4. Control efficiencies of 99.2% for non-methane organic compounds (NMOC), of 98% for halogenated compounds, and 99.7% for non-halogenated compounds found in LFG were applied to the flares. These efficiencies are found in AP-42 Table 2.4-3. The combustion of LFG also creates secondary emissions of particulate matter less than ten microns in diameter (PM₁₀), sulfur dioxide (SO₂), nitrogen oxides (NO_x), and carbon monoxide (CO).

Emissions of the secondary pollutants from the flare were calculated using emission factors found in AP-42 Table 2.4-5. These factors are expressed in units of pounds of pollutant per average million dry standard cubic feet per minute (lb/10⁶ SCFM) of methane. CO emissions from the installation exceed the major source level for the installation. In order to remain a minor source, Courtney Ridge Landfill, LLC has accepted a voluntary limit of less than 250.0 tons of CO from the two flares. To demonstrate compliance with this limit Courtney Ridge Landfill, LLC will record the volume of LFG sent to the flares. The meters used to record this volume also record the ambient temperature and pressure to convert the LFG volume to standard conditions. The meters are equipped with totalizers that record the total LFG sent to the

flare. Courtney Ridge Landfill, LLC will read the meters monthly, record the total LFG flared that month and use that value and Attachment A to calculate there 12-month rolling total emissions. The emission factor in Attachment A is expressed in units of tons of CO per million dry standard cubic feet (ton CO/10⁶ SCF) of LFG.

Existing potential emissions were separated into fugitive and non-fugitive emissions for the purpose of determining major source applicability. This installation is not in one of the name source groups found in 10 CSR 10-6.020(3)(B), Table 2, therefore the installation's major source level is 250.0 tons per year of PM₁₀, SO₂, NO_x, VOC or CO and fugitive emissions are not counted. Fugitive emissions represent the regulated constituents of the LFG that are not captured by the collection system. Operation of heavy equipment at the landfill generates PM₁₀. These emissions are not associated with the project and do not count toward major source applicability, so the emissions were not calculated. The non-fugitive emissions are the LFG constituents that were captured but not destroyed by the flares and the secondary emissions from the two flares. Potential emissions of the project are the emissions from the new flare (EP-11) operating at its maximum capacity (2000 SCFM). 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 (2008 EIQ)	Potential Emissions of the Project EP-11	New Installation Conditioned Potential of Non-Fugitive Emissions
		Fugitive	Non-Fugitive			
PM ₁₀	15.0	N/D	5.67	2.64	4.91	N/D
SO ₂	40.0	N/A	5.05	2.18	4.38	N/D
NO _x	40.0	N/A	13.33	6.22	11.56	N/D
VOC	40.0	136.7	2.60	0.23	4.37	N/D
CO	100.0	2.59	< 250.0	116.59	216.8	< 250.0
Toluene	10.0	10.35	0.07	N/D	0.12	N/D
Total HAP	25.0	15.18	0.19	1.10	0.32	N/D

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

PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (6) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of carbon monoxide are above the de minimis level but limited below the major source level.

APPLICABLE REQUIREMENTS

Courtney Ridge Landfill, LLC 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. For a complete list of applicable requirements for your installation, please consult your operating permit.

GENERAL REQUIREMENTS

- Submission of Emission Data, Emission Fees and Process Information, 10 CSR 10-6.110. The emission fee is the amount established by the Missouri Air Conservation Commission annually under Missouri Air Law 643.079(1). Submission of an Emissions Inventory Questionnaire (EIQ) is required June 1 for the previous year's emissions.
- *Operating Permits*, 10 CSR 10-6.065
- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170
- *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.220
- *Restriction of Emission of Odors*, 10 CSR 10-3.090

SPECIFIC REQUIREMENTS

- *New Source Performance Regulations*, 10 CSR 10-6.070. *New Source Performance Standards (NSPS) for Municipal Solid Waste Landfills*, 40 CFR Part 60, Subpart WWW.
- *New Source Performance Regulations*, 10 CSR 10-6.070. *General Provisions*, 40 CFR Part 60, Subpart A, Section 60.18, *General Control Device Requirements*.
- *Maximum Achievable Control Technology (MACT) Regulations*, 10 CSR 10-6.075, *National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills*, 40 CFR Part 63, Subpart AAAA.

AMBIENT AIR QUALITY IMPACT ANALYSIS

Ambient air quality modeling was performed to determine the ambient impact of carbon monoxide, as this was the only pollutant with potential to emit above the de minimus level. The ambient impact is for a 2,000 SCFM flare having a stack height, total heat released, and emission rate of CO of 7.01 meters, 0.42E+07 calories per second, and 6.24 grams per second, respectively. As stated previously in the permit, the CO emission rate is based upon the methane generation rate expected from the landfill at maximum flow through the flare. As can be seen in Table 3, the results of the model predict an ambient impact below the NAAQS.

Table 4: NAAQS Compliance

Pollutant	Modeled Impact ($\mu\text{g}/\text{m}^3$)	NAAQS ($\mu\text{g}/\text{m}^3$)	Time Period
CO	19.22	10,000	8 hour
	27.46	40,000	1 hour

STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (6), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, I recommend this permit be granted with special conditions.

Michael Mittermeyer
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, received January 22, 2010, designating Courtney Ridge Landfill, LLC as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Kansas City Regional Office Site Survey, February 3, 2010.

Mr. Brad Zimmerman
Environmental Manager
Courtney Ridge Landfill, LLC
2001 N. MO Hwy 291
Sugar Creek, MO 64058

RE: New Source Review Permit - Project Number: 2010-01-048

Dear Mr. Zimmerman:

Enclosed with this letter is your permit to construct. Please study it carefully. Also, note the special conditions, if any, 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, your new source review permit application and with your amended operating permit 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 Mike Mittermeyer, at the Departments' 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

Kendall B. Hale
New Source Review Unit Chief

KBH:mml

Enclosures

c: Kansas City Regional Office
PAMS File: 2010-01-048

Permit Number: