



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: 032007-011 Project Number: 2006-10-116

Parent Company: Enviro – Site Management, LLC.

Parent Company Address: P.O. Box 2880, Springfield, MO 65801

Installation Name: Southwest Regional Landfill

Installation Address: Route M, Purcell MO 64857

Location Information: Jasper County, S34, T30N, R32W

Application for Authority to Construct was made for: Construction of a new municipal solid waste (MSW) landfill with a capacity of 9,658,000 short tons or approximately 19,316,000 cubic yards (14,768,140 m³). At the predicted waste acceptance rates, this landfill is estimated to be able to receive waste material for approximately 33 years. 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.

MAR 30 2007

EFFECTIVE DATE

Signature of James Y. Karamant and title DIRECTOR OR DESIGNEE

## 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 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 with 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.

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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."*

Southwest Regional Landfill  
Jasper County, S34, T30N, R32W

1. New Sources Performance Standards (NSPS)  
Southwest Regional Landfill shall comply with all applicable emission limits, monitoring, testing, reporting, and record keeping requirements of 40 CFR 60, Subpart WWW, *Standards of Performance for Municipal Solid Waste Landfills*.
2. National Emission Standards for Hazardous Air Pollutants (NESHAP)  
Southwest Regional Landfill shall comply with all applicable emission limits, testing, monitoring, sampling, reporting, and record keeping requirements of 40 CFR Part 63, Subpart AAAA, *National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills*.
3. Chemical Dust Suppressant Usage on Unpaved Haul Roads
  - A. Southwest Regional Landfill shall apply a chemical dust suppressant agent to control the emission of PM<sub>10</sub> from unpaved haul roads. Southwest Regional Landfill shall apply this chemical dust suppressant agent, as necessary, to maintain the high level of PM<sub>10</sub> emissions control (i.e. 90%) predicted for these sources or whenever conditions exist that would allow the "visible emission" of particulate matter from these sources. The "visible emissions" wording associated with this permit condition should be interpreted to mean that the Air Pollution Control Program would not expect to see a significant amount of visible emissions being emitted from these sources. The Air Pollution Control Program does not interpret this "visible emissions" language to mean that there would never be any visible emissions from these sources, but rather that they should be negligible at all times. This chemical dust suppressant agent shall also be applied whenever conditions exist that would allow visible fugitive emissions from these sources to enter the ambient air beyond the property boundaries.
  - B. The chemical dust suppressant agent shall be applied to the haul roads at the manufacturer's recommended application rate for the specific dust control agent to be used at this installation.
  - C. The installation shall keep the following records, with the plant, for not less than five years and shall make these records available to Department of Natural Resources' personnel upon request:

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**SPECIAL CONDITIONS:**

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

- (a) The estimated surface area of the haul roads for this site;
  - (b) The time, date and the approximate amount of material applied for each application of the chemical dust suppressant agent on the above sources; and
  - (c) Records of breakdowns and repairs for the equipment used to apply the chemical dust suppressant agent.
- D. The installation shall conduct and record the results of periodic visual inspections on the unpaved roads controlled by a chemical dust suppressant agent(s). This visual inspection(s) shall examine and note the condition of the road surface(s) especially for signs of wear (surface potholes, wash-boarding or raveling, ruts, etc.). This is to help determine the effectiveness of the dust control agent(s) being used and when the material needs to be re-applied to maintain the high level of control efficiency predicted for the above sources.
4. Continuing Nuisance Odor Situation – Corrective Action Plan Requirements  
If a continuing situation of demonstrated nuisance odors exists in violation of 10 CSR 10-4.070, Restriction of Emission of Odors, the Director may require the Southwest Regional Landfill to submit a corrective action plan within ten (10) days of the request (or alternate schedule if approved by the Director) that is adequate to timely and significantly mitigate the cause(s) of the odors. Southwest Regional Landfill shall implement any such plan immediately upon its approval by the Director. Failure to either submit such a corrective action plan if requested or to implement such a plan after approval by the Director shall be a violation of this permit.

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

Project Number: 2006-10-116  
Installation ID Number: 097-0137  
Permit Number:

Southwest Regional Landfill  
Route M  
Purcell MO 64857

Complete: 10/30/2006  
Reviewed: 01/23/2007

Parent Company:  
Enviro – Site Management, LLC.  
P. O. Box 2880  
Springfield, MO 65801

Jasper County, S34, T30N, R32W

REVIEW SUMMARY

- Southwest Regional Landfill has applied for authority to construction a new municipal solid waste (MSW) landfill with a capacity of 9,679,800 tons or approximately 12,906,400 cubic yards (9,867,651 m<sup>3</sup>). At the predicted waste acceptance rates, this landfill is estimated to be able to receive waste material for approximately 33 years.
- Hazardous Air Pollutant (HAP) emissions are expected from the proposed landfill, but in insignificant quantities.
- The design capacity of the Southwest Regional Landfill is greater than 2.5 million m<sup>3</sup> and therefore Subpart WWW of the New Source Performance Standards (NSPS), *Standards of Performance for Municipal Solid Waste Landfills*, applies to this installation.
- The Maximum Achievable Control Technology (MACT) standard, 40 CFR Part 63, Subpart AAAA, *National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills*, does not apply to the installation because uncontrolled emissions of non-methane organic compounds (NMOC) are not greater than 50 Mg/yr.
- No control devices are being used to control emission 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 Sulfur Oxides (SO<sub>x</sub>) and NMOC are above de minimis but below major levels.
- This installation is located in Jasper 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 not performed for this review. No model is currently available which can accurately predict ambient ozone concentrations caused by this installation's VOC emissions.
- Emissions testing is required as outlined in NSPS, Subpart WWW, *Standards of Performance for Municipal Solid Waste Landfills*.
- A Basic Operating Permit application is required for this installation within 30 days of equipment startup.
- Approval of this permit is recommended with special conditions.

### INSTALLATION DESCRIPTION

Enviro –Site Management, LLC has applied for authority to construct a new MSW landfill, in Purcell, Missouri in Jasper County. This new landfill, to be known as Southwest Regional Landfill, will have a capacity of capacity of 9,679,800 tons or approximately 12,906,400 cubic yards (9,867,651 m<sup>3</sup>) of MSW over the life of the landfill.

This installation will emit landfill gas (LFG) produced by microorganisms within the landfill under anaerobic conditions. Methane (CH<sub>4</sub>) and non-methane organic compounds (NMOC) are the primary constituents of landfill gas. This NMOC fraction often contains various organic hazardous air pollutants (HAP), greenhouse gases (GHG), and compounds associated with stratospheric ozone depletion.

PM emissions will also be generated in the form of fugitive dust created by mobile sources (i.e., garbage trucks) traveling along the unpaved haul roads.

This project is for a new source of air pollutants and has therefore not received any Construction/Operating permit(s) from the Air Pollution Control Program (APCP).

### PROJECT DESCRIPTION

The proposed landfill will have a footprint of approximately 109 acres and a capacity of 9,679,800 tons or approximately 12,906,400 cubic yards (9,867,651 m<sup>3</sup>) of MSW over the life of the landfill.

There will be paved and unpaved haul roads at this installation covering a total distance of 1.25 miles (paved portion is 0.25 miles and 1.0 mile unpaved).

In the permit application, the installation indicated the annual waste acceptance rate would be approximately 260,000 Mg (255,893.7 tons) of MSW. At this predicted waste acceptance rate, the landfill is estimated to receive MSW for 33 years.

This new landfill will be subject to the requirements of NSPS Subpart WWW, *Standards*

of Performance for Municipal Solid Waste Landfills, because it has a design capacity of greater than 2.5 million m<sup>3</sup>.

It will not be subject to Maximum Achievable Control Technology (MACT) standard, 40 CFR Part 63, Subpart AAAA, *National Emission Standards for Hazardous Air pollutants: Municipal Solid Waste Landfills*, because uncontrolled emissions of NMOC are not predicted to be greater than 50 Mg/yr.

## EMISSIONS/CONTROLS EVALUATION

The type and amount of air pollutants emitted from landfills vary over the life of the landfill depending on the composition of the waste, the landfill design and management, the current anaerobic state of the waste and the length of time the waste has been in place in the landfill. Methane and carbon dioxide are the primary constituents of LFG. In addition to the methane and carbon dioxide emissions, some NMOC will also be emitted. The NMOC often contains various HAPs and Volatile Organic Compounds (VOCs).

Potential emissions from the landfill itself were estimated using the Environmental Protection Agency's (EPA) Landfill Gas Emissions Model (LandGEM) Version 3.02. The average annual refuse acceptance rate used in estimating the emissions from the Southwest Regional Landfill was 260,000 Mg (255,893.7 tons) of waste per year.

The model parameters shown in Table 1 below were used for emissions estimations from the landfill.

Table 1. Model Parameters

Model Parameter	Value
Methane Generation Rate, k (year <sup>-1</sup> )	0.04
Potential Methane Generation Capacity, L <sub>0</sub> (m <sup>3</sup> /Mg)	100
NMOC Concentration (ppmv as hexane)	600
Methane Content (% by volume)	50

Recommended AP-42 defaults include a k value of 0.04 per year for areas receiving 25 inches or more of rain per year. Ap-42 suggests that a L<sub>0</sub> value of 100 m<sup>3</sup>/Mg refuse is appropriate for most landfills. If a landfill is known to contain only MSW or have very little organic and non residential waste, then a total NMOC value of 595 ppmv as hexane can be used. The current version of the Landfill Air Emissions Estimation model contains a proposed regulatory default value for total NMOC of 4000 ppmv, expressed as hexane.

Based upon the above parameters in Table 1, it was determined that the highest uncontrolled methane, carbon monoxide, and NMOC emissions would be 67.56 million cubic feet per year, 6.89 tons per year, and 90.69 tons per year, respectively. These emission values would occur in the 41<sup>st</sup> year of landfill operation.

The Southwest Regional Landfill will not be equipped with a gas collection system.

Emission factors used in calculating potential emissions from waste haul roads were obtained from EPA document AP-42, *Compilation of Air Pollutant Emission Factors*.

The following table provides an emissions summary for this project. Since this is a new

installation, there are no existing potential or existing actual emissions.

Table 3. Emissions Summary (tons per year).

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Potential Emissions of the Application	New Installation Conditioned Potential
PM <sub>10</sub>	15.0	N/A	12.85	N/A
SO <sub>x</sub>	40.0	N/A	2.54	N/A
NO <sub>x</sub>	40.0	N/A	N/D	N/A
VOC	40.0	N/A	N/D	N/A
CO	100.0	N/A	6.88	N/A
NMOC	50.0	N/A	90.69	N/A
HAPs	10.0/25.0	N/A	N/D	N/A

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

The Carbon Monoxide (CO) emissions was calculated by Landfill Gas Emission model (Landgem), version 3.02. Nitrogen oxide (NO<sub>x</sub>) emissions were not calculated because of the absence of a site-specific or default concentration values for nitrogen compounds. The uncontrolled amount of nitrogen oxide emissions are not readily calculable and can vary depending on air infiltration in the land fill.

The SO<sub>x</sub> emissions was based on the assumption that approximately 55 percent of landfill gas is methane and 45 percent other constituents. Using equation (3) from AP-42, Section 2.4 Municipal Solid Waste Landfills (11/98), the emission rate of sulfur was obtained. Since no site-specific data is available for a new landfill, the default value of 46.9 ppmv was used for the concentration of sulfur in landfill gas. Using this value in equation (4) from AP-42, 2.4 Municipal Solid Waste Landfills (11/98) the uncontrolled mass emissions of Sulfur was determined. Taking this value into equation (7) from AP-42, 2.4 Municipal Solid Waste Landfills (11/98) the controlled mass emission of SO<sub>x</sub> was obtained. The PM<sub>10</sub> emission were calculated using Air Pollution Control Program quarry spread sheets which calculate the PM<sub>10</sub> haul road emissions and the overburden emissions.

Equation (3) from AP-42, Section 2.4 Municipal Solid Waste Landfills (11/98).

$$Q_p = 1.82 Q_{CH_4} * C_p / (1 * 10^6)$$

Q<sub>p</sub> = Emission rate of Pollutant P (i.e. sulfur), m<sup>3</sup>/yr;  
 Q<sub>CH<sub>4</sub></sub> = CH<sub>4</sub> (methane) generation rate, m<sup>3</sup>/yr from Landgem;  
 C<sub>p</sub> Concentration of P (i.e. sulfur) in landfill gas, ppmv (default 46.9); and  
 1.82 = Multiplication factor.

Equation (4) from AP-42, Section 2.4 Municipal Solid Waste Landfills (11/98).

$$UM_p = Q_p * [ (MW_p * 1) / ((8.205 * 10^{-5}) (1000) (298)) ]$$

UM<sub>p</sub> = Uncontrolled mass emissions of Pollutant P (i.e. sulfur), kg/yr;  
MW<sub>p</sub> = Molecular weight of P, (i.e. sulfur 32.06g/gram mole)  
Q<sub>p</sub> = Emission rate of Pollutant P (i.e. sulfur), m<sup>3</sup>/yr; and  
T = Temperature of landfill gas, (celsius default 25).

Equation (7) from AP-42, Section 2.4 Municipal Solid Waste Landfills (11/98).

$$M_{SO_2} = UM_S * 2.0$$

M<sub>SO<sub>2</sub></sub> = Mass emissions of SO<sub>2</sub>, Kg/yr;  
UM<sub>S</sub> = Uncontrolled mass emissions of reduced sulfur compounds as sulfur, Kg/yr; and  
2.0 = Ratio of the molecular weight of SO<sub>2</sub> to the molecular weight of S.  
Note: Because no gas collection system exists, the correction factor was removed.

## 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 NMOC are above de minimis levels.

## APPLICABLE REQUIREMENTS

Southwest Regional Landfill 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  
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 April 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

- *Restriction of Emission of Particulate Matter From Industrial Processes*, 10 CSR 10-6.400
- *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
- *Restriction of Emissions from Municipal Solid Waste Landfills*, 10 CSR 10-6.310

## 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.

\_\_\_\_\_  
Tim Hines  
Environmental Engineer

\_\_\_\_\_  
Date

## PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated October 16, 2006, received October 23, 2006, designating Enviro-Site Management , LLC as the owner and operator of Southwest Regional Landfill.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- U.S. EPA Landfill Gas Emissions Model (LandGEM) Version 3.02
- SWRO Regional Office Site Survey.

Mr. Craig Post  
President  
Enviro-Site Management, LLC  
P.O. Box 2880  
Springfield, MO 65801

RE: New Source Review Permit - Project Number: 2006-10-116

Dear Mr. Post:

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 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, please contact me at (573) 751-4817, or write to the Department of Natural Resources' Air Pollution Control Program, PO Box 176, Jefferson City, MO 65102. Thank you for your attention to this matter.

Sincerely,

**AIR POLLUTION CONTROL PROGRAM**

Kendall B. Hale  
New Source Review Unit Chief

KBH: thk

Enclosures

c: Southwest Regional Office  
PAMS File: 2006-10-116

Permit Number: