

# 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: 112010-007 Project Number: 2010-08-053

Parent Company: IESI Corporation

Parent Company Address: 2301 Eagle Parkway, Suite 200, Fort Worth, TX 76177

Installation Name: Timber Ridge Landfill

Installation Number: 221-0031

Installation Address: 12581 State Highway H, Richwood's, MO 63071

Location Information: Washington County, LG3022, T40N, R2E

Application for Authority to Construct was made for:  
500 standard cubic feet per minute flare. 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.

NOV 15 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 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 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 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.

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

Project Number: 2010-08-053  
Installation ID Number: 221-0031  
Permit Number:

Timber Ridge Landfill  
12581 State Highway H  
Richwoods, MO 63071

Complete: August 27, 2010

Parent Company:  
IESI Corporation  
2301 Eagle Parkway, Suite 200  
Fort Worth, TX 76177

Washington County, LG3022, T40N, R2E

REVIEW SUMMARY

- Timber Ridge Landfill has applied for authority to install a 500 standard cubic feet per minute flare.
- Insignificant amounts of hazardous air pollutant (HAP) emissions are expected from incomplete combustion of landfill gas. Also, HAP emissions are generated by the landfill and controlled to varying efficiencies by the flare.
- New Source Performance Standards (NSPS) 40 CFR 60 Subpart WWW, *Standards of Performance for Municipal Solid Waste Landfills* applies to the landfill. As the annual NMOC emission rate does not meet or exceed 50 megagrams using a site specific NMOC concentration, the flare is not being installed for compliance with Subpart WWW.
- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) apply to this installation. Maximum Achievable Control Technology (MACT) Subpart AAAA, *National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills* does not apply to the installation as it is not a major source of HAPs and the estimated uncontrolled NMOC emissions are less than 50 megagrams per year.
- The flare itself is a control device for NMOC and HAP emissions from the landfill, but a source of particulate matter, carbon monoxide, sulfur oxides, nitrogen oxides, and other products of combustion.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of CO are below the de minimis level, but above the insignificant level.

- This installation is located in Washington 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 below de minimis levels.
- Emissions testing are not required for the new equipment.
- A modification to the Part 70 operating permit is required for this installation within 1 year of equipment startup.
- Approval of this permit is recommended without special conditions.

### INSTALLATION DESCRIPTION

Timber Ridge Landfill is an existing municipal solid waste landfill that has accepted waste since 2003. It is a minor source under construction permits, and holds a Part 70 operating permit.

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

**Table 1: Permit History**

Permit Number	Description
072003-010	Section 6 construction permit
072003-010A	Amendment for haul roads
OP2006-099	Part 70 operating permit
072003-010B	Amendment for haul roads

### PROJECT DESCRIPTION

Timber Ridge Landfill is installing a 500 standard cubic feet per minute flare. The flare will combust landfill gas produced by the decomposition of waste from cells 1-4. The new flare is not being installed to comply with NSPS Subpart WWW. It will reduce methane and HAP/volatile organic compound (VOC) emissions from the landfill gas, but produce carbon monoxide and other combustion products.

## 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.

According to AP-42, the landfill gas collection system is by default 75 percent efficient. The flare is designed to control halogenated compounds at 98.0 percent efficiency, non-halogenated compounds at 99.7 percent efficiency, and NMOC at 99.2 percent efficiency. The combustion of landfill gas also creates particulate matter less than ten microns in diameter (PM<sub>10</sub>), sulfur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), and CO.

The primary constituents of landfill gas are approximately 55 percent methane (CH<sub>4</sub>) and 45 percent carbon dioxide (CO<sub>2</sub>). Typically, landfill gas also contains a small amount of NMOC. This NMOC fraction often contains various organic hazardous air pollutants (HAP), greenhouse gases (GHG), volatile organic compounds (VOC), and other compounds associated with stratospheric ozone depletion.

Maximum production of landfill gas was found using LandGEM version 3.02. The known amount of waste accepted by the landfill from 2003 to 2009 was entered into LandGEM. The acceptance in 2010 was calculated based upon the remaining space in cells 1-4. The values used in the model for the methane generation potential (L<sub>0</sub>) and methane generation constant (k) were the AP-42 recommended values of 100.0 cubic meters per megagram and 0.04 per year, respectively. Site specific NMOC concentration of 330 parts per million volume as hexane was entered. The AP-42 recommended values were used instead of those presented in the NSPS Subpart WWW since the purpose of these calculations is to estimate the most realistic potential emissions of the landfill and not for showing compliance with the NSPS.

It was determined that a maximum landfill gas generation rate from cells 1-4 of 296.1 average actual cubic feet per minute (acfm) would be reached in the year 2011. With a collection efficiency of 75 percent, this would correspond to a flow rate of approximately 222 acfm of landfill gas. AP-42 approximates landfill gas at 55 percent methane. Therefore, the potential flow rate of methane in the collection system is 122 acfm. The emission factor unit for NO<sub>x</sub>, CO, and PM<sub>10</sub> is pounds of pollutant per million dry standard cubic feet (dscf) of methane. Acfm needs to be converted to dscfm. Site specific temperature, relative humidity, and pressure of the landfill gas are necessary to convert acfm to dscfm. Lacking site specific parameters, the conservative estimates of 40 degrees Fahrenheit, 0 percent humidity, and 15 pounds per square inch pressure were used in converting 122 acfm to 132 dscfm of methane. However, since the flare is not being installed to comply with NSPS Subpart WWW, potential emissions of the application were calculated using the maximum flow rate of the flare, 500 scfm of landfill gas, or 275 scfm methane.

Based on the methane flow rate, the PM<sub>10</sub>, CO, and NO<sub>x</sub> emissions can be calculated. Particulate emissions are calculated using the emission factor for flares found in Table 2.4-5 in AP-42. According to the footnote to this table, most of the particulate matter will

be less than 2.5 microns in diameter, therefore the emission factor can be assumed to estimate total PM, PM<sub>10</sub>, and PM<sub>2.5</sub> emissions. CO and NO<sub>x</sub> emissions are also calculated by utilizing factors found in Table 2.4-5 of AP-42.

Landfill gas constituents and their default concentrations are listed in Table 2.4-1 of AP-42. The HAPs in that table were checked against the *Table of Hazardous Air Pollutants, Screening Model Action Levels, and Risk Assessment Levels*, Revision 6, August 16, 2010 from the Missouri Department of Natural Resources Air Pollution Control Program. Any delisted HAP from the AP-42 table was removed from this review.

Sulfur, VOC as a NMOC, and HAP concentrations are provided in parts per million volume, which is converted to volumetric flow rate. Using the ideal gas law, the volumetric flow rate is converted to a mass flow rate. The mass flow rates of sulfur, VOC as a NMOC, and HAPs assuming continuous operation (8,760 hours per year) at the flare's maximum flow rate, are used to calculate their respective potential emissions for the application. Existing potential emissions are cited in permit 072003-010. The following table provides an emissions summary for this project.

**Table 2: Emissions Summary (tons per year)**

Pollutant	Regulatory De Minimis Levels	Existing Potential Emissions	Existing Actual Emissions (2009 EIQ)	Potential Emissions of the Application	New Installation Conditioned Potential
PM <sub>10</sub>	15.0	14.39	2.92	1.23	N/A
PM <sub>2.5</sub>	10.0	N/D	N/D	1.23	N/A
SO <sub>x</sub>	40.0	N/A	N/A	1.10	N/A
NO <sub>x</sub>	40.0	N/A	N/A	2.89	N/A
VOC	40.0	6.71	1.13	0.08	N/A
CO	100.0	13.5	N/A	54.20	N/A
Combined HAPs	25.0	5.51	0.14	0.04	N/A
NMOC	50.0	1178.38	N/D	0.08	N/A

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

### 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 CO are below the de minimis level, but above the insignificant level.

## APPLICABLE REQUIREMENTS

Timber Ridge 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. 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 a hardcopy Emissions Inventory Questionnaire (EIQ) is required April 1 for the previous year's emissions. Submission of an electronic EIQ via MoEIS is required May 1.
- *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.

## 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 without 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 August 24, 2010, received August 27, 2010, designating IESI Corporation as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Southeast Regional Office Site Survey, dated September 7, 2010.

Mr. Mike Friesen  
Region Engineer  
Timber Ridge Landfill  
2301 Eagle Parkway, Suite 200  
Fort Worth, TX 76177

RE: New Source Review Permit - Project Number: 2010-08-053

Dear Mr. Friesen:

Enclosed with this letter is your permit to construct. Please study it carefully. 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 David Little, 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:dll

Enclosures

c: Southeast Regional Office  
PAMS File: 2010-08-053

Permit Number: