



## DEQ Air Quality Inspection Report

### GENERAL INFORMATION

#### **Facility Information:**

Facility Name	Riverbend Landfill Company, Inc.
Site Address	13469 SW Highway 18 McMinnville, OR 97128
County	Yamhill
Permit Number	36-0011
Permit Type (ACDP, ACDP-SM80, Title V)	Title V

#### **Inspection Information:**

Inspection Date/Time: 8/8/12		
Inspection Type:	FCE/PCE (specify)	FCE
	State inspection	
	Announced	X
	Unannounced	
Reason for inspection:	Regularly scheduled inspection	X
	Complaint follow-up	
	Other (specify)	
Inspector(s) (name, title, agency)	Gary Andes, Sr. AQ Inspector, ODEQ	
DEQ Air Quality Manager/Region	Claudia Davis/Western Region-Salem	
Facility Representative (name, title, phone #)	Jeff O'Leary, Environmental Protection Specialist 503/857-5870 Dave Wilson, Market Area Gas Operations Manager Larry Pierce, District Manager 503/472-8788	

### FCE INSPECTION REPORT CHECKLIST

Action	Completed (yes/no)	Comments
Current reports reviewed	Yes	
Excess emissions reviewed	Yes	
Enforcement history reviewed	Yes	
Applicable requirements reviewed	Yes	
Facility records reviewed on-site	Yes	
Facility observations completed	Yes	
Compliance/technical assistance provided	Yes	
Findings discussed on-site	Yes	

## FACILITY DESCRIPTION

The facility is a regional municipal solid waste landfill although minor quantities of industrial, commercial, and special wastes are also landfilled. The landfill maintains a gas collection system with six LFGTE IC engines and an enclosed flare for destruction of the landfill gas. The design capacity of the landfill is about 13,500,000 cubic yards of waste. The facility is subject to the NSPS for municipal solid waste landfills of 40 CFR Part 60 Subpart WWW and the MACT requirements of 40 CFR Part 63 Subpart AAAA. The IC engines are also subject to 40 CFR Part 60 Subpart JJJJ and the MACT requirements of 40 CFR Part 63 Subpart ZZZZ.

### **Significant Emission Devices/Activities/Control Devices**

Emission Device or Activity Description	Control Device Description
Six IC landfill gas-to-energy engines	None
Enclosed flare	None
Fugitive landfill gas	LFG collection system

### **Notice of Intent to Construct Approvals (since last inspection 8/30/10)**

Date	Description
10/13/10	Additional landfill gas extraction wells
9/28/11	Additional landfill gas extraction wells
1/22/12	Additional landfill gas extraction wells

## PRE-INSPECTION REVIEW

Annual reports have been submitted in a timely and complete manner. Prior inspections have shown the facility to be in compliance with the permit conditions. No formal enforcement actions have been taken against the facility.

The Title V permit was renewed on 3/5/10 simultaneously with issuance of a Standard ACDP for construction of the six new landfill gas to energy IC engines and a new enclosed flare. Considerable public comment was received and a public hearing held on 10/20/09. Based on the public comment and concerns some permit conditions were changed and other new conditions added. The renewal permit now requires the company to conduct an odor survey around the landfill, submit monthly operating reports, and hold semi-annual community meetings. The community meetings have been held in October and April since the 3/5/10 renewal with good public attendance and interest.

A minor permit modification was issued on 11/14/11 to change the PM<sub>10</sub> emission factors for the engines and flare.

### **Current Issues**

Odors and odor complaints are the dominant issue from an AQ standpoint at the facility. The Department continues to work with the company to determine what sulfur bearing materials come to the landfill and if there are measures that can be taken to divert the wastes elsewhere or whether the wastes can be segregated and operating measures taken to reduce the potential for hydrogen sulfide generation. High sulfur waste from Solar World Wafers is no longer being taken at the landfill, although it was a relatively low quantity waste stream. SP Newsprint ESP ash is being placed in a single location in the landfill to segregate it from the other materials. The company is working with SP to ensure the loads are wetted to reduce dust from unloading. Other operating practices are also being used at the landfill to reduce dust from unloading of the SP waste materials.

The company has been conducting monthly inlet hydrogen sulfide sampling which has shown levels around 230-260 ppm S in the inlet gas stream to the engines and flare. The July sample spiked at 460 ppm and resampling has been conducted to determine if the result was a laboratory analysis error.

The company has submitted a Title V permit modification to increase the SO<sub>2</sub> emissions (the hydrogen sulfide is converted to SO<sub>2</sub> during the combustion process in the engines or flare). Modeling of the increased SO<sub>2</sub> emissions indicates that no ambient health standards would be exceeded. PM<sub>2.5</sub> and greenhouse gas PSEs will also be established in this permit action as a result of recent DEQ rule changes.

**Reports (since last inspection 8/30/10)**

Type	Period	Date Received	Deviations (yes/no)	Comments
Monthly	Aug. 2010	9/29/10	No	
Monthly	Sept. 2010	10/29/10	No	
Monthly	Oct. 2010	11/30/10	No	
ST	9/27-30/10	12/20/10	No	ST on engines and flare for PM, SO <sub>2</sub> , NO <sub>x</sub> , CO, and VOC
Monthly	Nov. 2010	12/28/10	No	
Monthly	Dec. 2010	1/31/11	No	
Monthly	Jan. 2011	2/28/11	No	
Annual	2010	3/14/11	Yes	Includes fee, SACC, and GHG report
Monthly	Feb. 2011	3/30/11	No	
Monthly	March 2011	4/28/11	No	
Monthly	April 2011	5/27/11	No	
ST	4/13-14/11	6/10/11	No	ST on flare for PM, SO <sub>2</sub> , NO <sub>x</sub> , CO, and NMOC
Monthly	May 2011	6/30/11	No	
Monthly	June 2011	7/29/11	No	
SACC	1-6/2011	8/15/11	No	
Monthly	July 2011	8/30/11	No	
Monthly	Aug. 2011	9/30/11	No	
Monthly	Sept. 2011	10/28/11	No	
ST	9/27-28/11	11/28/11	No	ST on engines NO <sub>x</sub> , CO, and VOC
Monthly	Oct. 2011	11/30/11	No	
Monthly	Nov. 2011	12/28/11	No	
Monthly	Dec. 2011	1/30/12	No	
Monthly	Jan. 2012	2/29/12	No	
Annual	2011	3/19/12	No	
Monthly	Feb. 2012	3/30/12	No	
Monthly	March 2012	4/30/12	No	
Monthly	April 2012	5/31/12	No	
Monthly	May 2012	6/29/12	No	
Monthly	June 2012	7/30/12	No	

**Excess Emissions (since last inspection 8/30/10))**

Date	Emission Device/Activity	Excess Emissions (magnitude & duration)	Enforcement Action Taken (yes/no)	Resolution
None				

**Enforcement History (since last inspection 8/30/10)**

Date	Enforcement Action (WL or PEN citation and description)	Resolution
6/3/11	PEN for PM <sub>10</sub> PSEL violation	Retracted on 8/3/11 due to new information

**Complaints (since last inspection 8/30/10)**

Date	Description	Resolution
Numerous	See DEQ files	Gas collection system continues to expand

**Walk-through of Facility**

Existing emission units observed during the inspection included the following:

1. Unpaved roads and operating landings (EU UPR) were being watered and roads have been coated with dust suppressant and receives supplemental water applications. Very minor fugitive dust was noted.
2. Paved roads (EU PIR) receive water application. No fugitive dust was noted. A 25,000 gallon water storage tank is used to provide sufficient capacity for watering roads with the water truck. A sweeper is used on the paved section of road and landfill entrance area three times per week.
3. Minor fugitive landfill gas (EU LFG) odors (both landfill gas and working face odors) were not noted along Highway 18 from Masonville Road to the landfill entrance with a SW wind but only slightly noted on the landfill site during a drive around. The operating landfill face was relatively small and has recently been reduced through operating practices and daily cover is well maintained. A tipper is used for large load vehicles to dump onto the working face. The tipper is moved every 5 days which helps to reduce the open face working area. Ten new vertical gas collection wells and 6 new horizontal gas wells will be drilled later this summer and then connected to the overall collection system. The odor reducing "mistors" were operating along the NW area of the landfill.
4. The larger compartment of the new enclosed flare (EU FLRN) was operating with 0% opacity pulling 1436 cfm of landfill gas with the two blowers drawing 19.0 and 19.5 amps. The flare temperature was 1572 degrees F well above the action level of 1433 degrees F. The flare inlet temperature was 83 degrees F.
5. All six of the IC engines (EU ENG) were operating with the following operational parameters.

System vacuum --- -60.3 inches

Engine kW---815 to 830 with an inlet temperature of 116 degrees F

Operating temperature---between 1138 and 1170 degrees F  
 LFG flow---total of 1910 cfm  
 Opacity---0% from all engines  
 LFG analysis---Methane 50.9%, CO<sub>2</sub> 36.4%, O<sub>2</sub> 0.93%, Nitrogen 11.7%, heating value 517 Btu/ft<sup>3</sup>  
 Crankcase exhaust---0% opacity from all engines; condensed oil from the exhaust filters is recycled back to the engines

6. Minor odors were noted downwind from the leachate collection pond and from a truck being loaded with leachate. Some leachate is being trucked to the Hillsboro wastewater treatment system for disposal and some to Bravo Environmental in Portland. The company is also working to get approval to ship some of the leachate to the Salem wastewater treatment plant at Willow Lake. Although some leachate has been used to water the poplar tree fields by drip irrigation, none was being used at inspection time. Leachate water is being segregated when it is generated with the “stronger” leachate being pumped into intermediate storage containers rather than the leachate pond before being directly pumped into the haul trucks.
  
7. The fields of poplar trees to the west of the landfill have grown considerably and provide a good visual buffer of the landfill from Highway 18 when approaching from the west. Some trees will be harvested in the near future.

**Permit Conditions Reviewed During Inspection**

Facility Wide

	Condition No.	REQUIREMENT	FINDING
Limit/Standard	4	Minimize fugitive dust	In compliance
Monitoring & Recordkeeping	5	Monthly VE survey	No fugitive emissions noted
Limit/Standard	6	No nuisance odors	In compliance
Monitoring & Recordkeeping	8	Complaint log	Numerous complaints received concerning odors
	8.a	Monthly Odor Survey for one year after engines begin operation (June 2010)	Completed each month through June 2012 and submitted with monthly report. The company has placed future surveys on hold.
	8.b	Analysis of landfill gas	Done on 3/16/10
Limit/Standard	7	No particulate >250 microns	In compliance
Monitoring & Recordkeeping	8	Complaint log	Two complaints received concerning dust

Landfill

	Condition No.	REQUIREMENT	FINDING
Limit/Standard	9.7	Maintain active gas collection system	In compliance
Monitoring &	9.7	Maintain plot plan of collection	Map being

Recordkeeping		system	maintained and updated
Limit/Standard	9.8	Negative wellhead pressure	In compliance
Monitoring & Recordkeeping	9.8	Measure wellhead pressures monthly	Pressures measured at least monthly & adjusted
Limit/Standard	9.9	Wellhead temperature <131 degrees F and O <sub>2</sub> <5%	In compliance
Monitoring & Recordkeeping	9.9	Measure wellhead temperature and oxygen monthly	Parameters measured at least monthly and adjusted; elevated temperature wells have received variances
Limit/Standard	9.10	Surface methane <500 ppm	In compliance
Monitoring & Recordkeeping	9.10	Monitor cover integrity	Visual inspections of cover done monthly
Monitoring & Recordkeeping	9.10	Quarterly surface methane sampling	Being conducted quarterly; some exceedances usually found and are quickly corrected
Limit/Standard	9.11	Route landfill gases to control system	In compliance
Monitoring & Recordkeeping	9.11	Operating log of control system downtime	Operating records being kept
Limit/Standard	9.12	Route landfill gas to enclosed flare and IC engines	In compliance
Monitoring & Recordkeeping	9.12	Record gas flow rates to enclosed flare and IC engines	Flow records being kept
Limit/Standard	9.19	Route excess landfill gas to open flare if necessary	Open flare was removed from the collection system in April 2012 but is onsite
Monitoring & Recordkeeping	9.19	Record gas flow rate to the open flare	Flow records were being kept when flare was operated
Limit/Standard	9.20	Develop and maintain an SSM Plan	SSM Plan developed and implemented
	9.20	Record and maintain records of each SSM event	SSM event records being maintained and submitted with semi-annual report

EUs UPR and PIR, Unpaved and Paved Roads

	Condition No.	REQUIREMENT	FINDING
Limit/Standard	10	20% opacity, 3 min. in 60 min.	In compliance

Monitoring & Recordkeeping	11	Weekly VE survey	VE records usually show 0% opacity; when opacity is detected, corrective actions (sweeping, watering) are taken
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EU FLRO and FLRN, Old Enclosed Flare and New Enclosed Flare

	Condition No.	REQUIREMENT	FINDING
Limit/Standard	12	20% opacity, 3 min. in 60 min.	In compliance
Monitoring & Recordkeeping	14	Monthly VE survey	VE records show 0% opacity
Limit/Standard	13	0.1 gr/dscf	In compliance
Monitoring & Recordkeeping	14	Monthly VE survey	VE records show 0% opacity
Limit/Standard	15	NMOC reduced 98% or <20 ppm	Sept 2010 and April 2011 tests show compliance
Monitoring & Recordkeeping	16.a.	Continuous temperature recorder and gas flow; Monthly bypass valve inspection	Temperature and gas flow being recorded; no bypass valve exists; pipe to FLRO capped off
Monitoring & Recordkeeping	16.b & c.	Emission Action Level for temperature on FLRO	EAL established on 10/15/01; FLRO no longer used
Monitoring & Recordkeeping	16.d & e.	Emission Action Level for temperature on FLRN	EAL established in initial source test at 1433 degrees F
Testing	16.g.	Perform NMOC destruction test on FLRN within 180 days of startup	Tests completed in Sept 2010 and April 2011

EU ENG, Engines

	Condition No.	REQUIREMENT	FINDING
Limit/Standard	17	20% opacity, 3 min. in 60 min.	In compliance
Limit/Standard	18	0.1 gr/dscf	In compliance
Monitoring & Recordkeeping	19	Keep records of maintenance	Records being maintained
Limit/Standard	20	Collect at least 75% of LFG generated (equaled 2249 cfm for 2011)	In compliance---2011 rate was 2961 cfm
Monitoring & Recordkeeping	21.a.	Continuous recorder for gas flow; Monthly bypass valve inspection	Gas flow being recorded; bypass valve does not exist
Limit/Standard	22	Limits for NO <sub>x</sub> , CO, and VOC	2010 and 2011 STs have shown compliance with the limits

Monitoring & Recordkeeping	23	Use certified engines or source test	Non-certified engines are being used; source test required annually
Testing	24	Perform source test on engines for PM, SO <sub>2</sub> , NO <sub>x</sub> , CO, VOC, and NMOC within 180 days of startup	Tests completed in Sept 2010 and Sept 2011

#### EU TIP, Tipper

	Condition No.	REQUIREMENT	FINDING
Limit/Standard	25	20% opacity, 3 min. in 60 min.	In compliance
Limit/Standard	26	0.1 gr/dscf	In compliance
Monitoring & Recordkeeping	27	Weekly VE survey	VE records show 0% opacity

#### PSEL

	Condition No.	REQUIREMENT	FINDING
Limit/Standard	29	Tons/year limits	In compliance
Monitoring & Recordkeeping	30 & 31	Maintain process records and calculate emissions	Records being kept and calculations done

#### REPORTS

	Condition No.	REQUIREMENT	FINDING
Limit/Standard	49	Excess emission reporting	No excess emissions have occurred
Limit/Standard	50	Deviation reporting	One deviation reported in last semi-annual report
Limit/Standard	53 & 54	Annual and semi-annual reports	Reports submitted as required
Limit/Standard	55	Submit monthly operating reports	Reports submitted timely and complete
Limit/Standard	56	Hold semiannual public meeting	Meetings have been held in April and October of each year
Limit/Standard	57	Startup notification for IC engines and new flare	Notifications sent on 5/4/10 and 7/2/10
Limit/Standard	58	Non-certified engine installation notification	Notification sent on 6/3/10 and updated 7/2/10

#### Other Discussions

The facility has around 159 active landfill gas collection wells (both vertical and horizontal wells). Some horizontal wells were extended on the NW side of the landfill earlier in the summer. The company plans to drill 10 additional new vertical wells and install 6 new horizontal wells later this summer.

Possible landfill expansion is still under discussion with local leaders, citizens, and agencies. The company has an application for a berm around part of the landfill that is currently being evaluated by DEQ's Solid Waste section. The berm would allow for some increased landfill capacity without expanding the landfill footprint.



Other waste reduction measures such as composting and conversion of some waste to gasoline are still being investigated by Waste Management, the parent company of the landfill. The plasma arc waste reduction technology is being tested at the Columbia Ridge Landfill. The parent company is now constructing a plastics-to-fuel facility in Portland. The landfill itself is going to expand the recycling facilities at the site appreciably in 2013.

Minor odors were noted offsite during the inspection time and only minimal odors noted onsite. However, odor complaints still are being received by the Department and the landfill and are being investigated by the landfill as they are called in. Odor reducing chemical mists are being used around the NW part of the perimeter of the landfill and at localized activities such as well drilling. During 2012, seventeen complaints were received in January, 9 in February, 28 in March, 12 in April, 6 in May, 5 in June, and one in July.

The facility is subject to DEQ and EPA reporting of greenhouse gas emissions.

**Compliance Status of Facility**

X	<b>Facility is in compliance with the permit conditions described above.</b>
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Attachments:

- Visible emission survey results
- Gas well temperature, pressure, and oxygen monthly log
- Cover integrity log
- Odor survey results
- PSEL calculation sheets
- PSEL summary sheet