



Landfill Project Submittal Form

Instructions:

This form must be submitted to the Reserve and to the verifier in the first year of reporting prior to verification. In some cases, it may be necessary to update parts of the Project Submittal Form in subsequent years. **All information in this form will be made publicly available.**

These forms are to be used for reporting general Landfill Project information to the Climate Action Reserve in order to initiate the project listing process. All fields must be completed as thoroughly as possible. If the project in question is still in the planning/ development phase, all fields must be completed using best available data and estimates based on the proposed system design. Upon receipt of completed submittal forms, Reserve staff will perform a general eligibility screen (in accordance with the protocol version under which the project is submitted) based on the information provided. Project Developers can expect an Invoice for the \$500 project listing fee within 15 days of receipt of the completed forms, and a letter regarding the status of project within 15 days of the receipt of the project listing fee. If a project passes the eligibility screen, it will be officially "listed" with the Climate Action Reserve

This is an interactive Word form. Upon completion, please save this form as a PDF prior to returning it to the Reserve. This will lock your answers and protect the document from any further changes. All fields must be completed, even if the answer is also provided elsewhere; if a field is not applicable insert N/A in the space provided. The completed form must be saved and uploaded to your Climate Action Reserve account. Submit all questions regarding the project submittal process to: reserve@climatereserve.org.

Version 2.4
February 2009

Project Name: Erie County Landfill

Project Developer: Element Markets, LLC

Facility Owner: Erie County Board Of Commissioners

Technical Consultants:

Other Parties with a Material Interest: Ohio Renewable Energy Services, LLC.

Date of form completion: 03/27/2009

Form completed by (name): Zach Eyler

Section 1: General Site Information

1. Name of Landfill: Erie County Sanitary Landfill
2. Approximate Latitude/Longitude of Landfill Project (degrees/minutes/seconds):
Lat: 41°N, 20', 26"; Long: 82°W, 35', 49"
3. Address (including county):
10102 Hoover Rd., Milan, OH 44846, Erie County, Ohio
4. Owner of Landfill and owner contact information:
Erie County Board of Commissioners
2900 Columbus Avenue
Sandusky, Ohio 44870
(419) 627-7672
5. Type of landfill (sanitary, controlled, or open dump): Sanitary
6. Landfill size – designed area for waste placement (acre or hectare):
60.63 acres
7. Total waste in place (cubic meters or tons): 1,853,806 tons
8. Designed landfill capacity (cubic meters or tonnes): 5,230,295 cubic meters
9. Year landfill opened: 1986
10. Year landfill closed or estimated date of closure: 2037
11. Average annual quantity of waste accepted at landfill (cubic meters or tonnes):
100,000 tonnes
12. Waste Characteristics Table

Waste Types	Estimated Percent of Waste Stream
Paper and Paperboard	37
Glass	6
Metals	8
Plastics	11
Rubber and Leather	n/a
Textiles	7
Wood	5
Food Scraps	11
Yard Trimmings	12
Misc. Inorganic Wastes	n/a
Other	3

Explain basis of estimates (i.e. site specific information, regional or national studies, EPA, etc.):

Ohio EPA study of Ohio wastestreams

Section 2: Project Eligibility and Monitoring

13. Initial verification period: June 2008 through May 2009

14. When did the project first commence operation, or when is the project expected to commence operation?

June 9, 2008

15. Have any vintage reduction tonnes from the project ever been registered with or claimed by another registry or program, or sold to another third party prior to registering with the Reserve?

No

If the answer is yes, you must complete and return a "Project Transfer" form.

16. Description of any regulatory framework for landfill methane capture and control (include an estimate of the date which the landfill will meet or exceed the 50 megagrams per year



threshold of calculated NMOC emissions per NSPS/EG regulations and the type of testing that justifies the estimate (i.e. Tier 1 or Tier 2 NMOC emission rate estimates)):

The Erie County Landfill completed a Tier I evaluation of NMOC emissions in 2002 and exceeded 50 Mg NMOC/yr. The Tier I value for NMOC was found to be 4000 ppmv (293 Mg/year). In July of 2003 and 2008 a Tier 2 evaluation was conducted to obtain a site-specific NMOC value. The site-specific NMOC values were 96 ppmv (6.95 Mg/yr) and 67 ppmv (5.50 Mg/yr) respectively. Based upon these two values and design capacity, the landfill will not exceed the 50 Mg/yr NMOC limit for the lifetime of the landfill and for post-closure.

17. Description and citation of all local and state air and water quality, explosive gas, or other regulations pertinent to the landfill or project:

Ohio Administrative Code 3745, Ohio Environmental Protection Regulations

18. Is this project being implemented and maintained as the result of any law, statute, regulation, court order, or other preexisting legally binding mandate?

☐ Yes

☒ No

Comments (if any):

19. Has a detailed monitoring plan been developed for this project? If not, what date will a monitoring plan be in place?

Yes

20. What Version or publication date of the Landfill Project Reporting Protocol is the project documentation based upon? Version 2.0

Section 3: Pre-project landfill gas control system information (fill out only if there was a landfill gas collection and/or control system in place that is separate from the Project system)

21. Type of pre-project landfill gas collection and control system in place, if any (e.g., open flare, enclosed flare, energy recovery etc.):

A passive venting system was installed at the landfill and began operation January 8, 2004. No passive flares were installed or utilized with this system, with two exceptions. To help Erie County determine the abilities and limitations of the LFG wellfield, two pump tests using rental flares were conducted. The first flow test was conducted in 2004, commencing on February 4, 2004 and concluding on February 27, 2004. The second flow test was conducted in 2007, commencing on October 25, 2007 and concluding on December 11, 2007.

- i. If Landfill gas collection system is in place, is the system actively collecting or passively venting gas?

The system was passively venting LFG other than when Erie County was conducting the two pump tests indicated in Question 21.

- ii. If flare or energy project is in place, what is the landfill gas flow rate (in scfm) and methane content?

During the two flow tests indicated in Question 21 the flow was 450 to 500 scfm, at 51% to 55% methane. Other than those two tests, no other pre-project flares were in place at the landfill.

- iii. Name of system designer, address and other contact information.

This is the system designer for both the passive venting system and the flare test system.

Brown and Caldwell Engineers
4700 Lakehurst Court, Suite 100
Dublin, OH 43016
614-410-6144

- iv. Supply a copy of the as built drawings for the pre-project system. Be sure to include in the diagram the location of all pre-project wells and/or other collection equipment and the location of all project-related wells and/or other collection equipment. (Attach as a separate PDF file titled: Pre-project LFG System Diagram)

22. When was this pre-project control system installed and operational?

The wells for this project were drilled in June 2003, with collection piping installed in September of 2003. The gas collection system became operational and started passively venting on January 8, 2004.

23. Provide a summary of the permits obtained to build and operate this Landfill Gas Control System).

Permit to build the LFG control system was PTI BAT 03-12661, 1B Construction, Phase 3 Capping, issued April 2002 by Ohio EPA, DSIWM

Permit to operate LFG control system is PTI 03-16197 issued 9/26/06 by Ohio EPA, DAPC

Section 4: Landfill gas utilization information for project activity

24. Landfill gas utilization (e.g., open-flared, enclosed flare, generation of electricity, use on-site as a boiler or furnace fuel, or sale to a third party):

Open Flare. Developer anticipates LFG to be diverted for power generation, starting in the summer of 2009.

25. When was this combustion/LFG utilization system installed and operational, or when is it expected to be installed and operational?

June 9, 2008

26. If designed to generate electricity:

- i. Type of engine-generator set (e.g., internal combustion engine, micro turbine or fuel cell with the name of the manufacturer, model, power output rating (kW or MJ) for biogas, and nominal voltage :

n/a

- ii. Pretreatment of landfill gas (e.g., none, condensate trap, dryer, hydrogen sulfide removal, etc. with the names of manufacturers, models, etc.):

n/a

- iii. Exhaust gas emission control (e.g., none, catalytic converter, etc.):



n/a

iv. If interconnected with an electric utility:

- Name of the utility: n/a
- Type of utility contract (e.g., sell all/buy all, surplus sale, or net metering):

n/a

v. If engine-generator set waste heat utilization:

- Heat source (e.g., cooling system or exhaust gas or both) and heat recovery capacity (Btu or kJ/hr):

n/a

- Waste heat utilization (e.g., water heating, space heating, etc.):

n/a

27. If designed to use on-site as a boiler or furnace fuel, a description of the boiler or furnace including manufacturer, model, and rated capacity (Btu or kJ/hr):

n/a

28. If designed for biogas sale to a third party, a description of the methods of processing, transport, and end use:

n/a

i. Pretreatment of Biogas (e.g., none, condensate trap, dryer, hydrogen sulfide removal, etc.) include names of manufacturer, model etc.:

n/a

ii. Exhaust gas emission controls from gas processing step:

n/a

29. Provide a summary and citation of the permits obtained to build and operate this Landfill Gas Utilization System).



Permit to build the LFG control system was PTI BAT 03-12661, 1B Construction, Phase 3 Capping, issued April 2002 by Ohio EPA, DSIWM

Permit to operate LFG control system is PTI 03-16197 issued 9/26/06 by Ohio EPA, DAPC