



Landfill Project Submittal Forms

Instructions:

This project 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 California Climate Action Registry in order to initiate the project listing process. All fields must be completed as thoroughly as is possible. If the project in question is still in the planning/development phase, all fields must be completed using best available data and estimations based on the proposed system design. Upon receipt of completed submittal forms, Registry staff will perform a general eligibility screen (in accordance with the most current version of the California Climate Action Registry Landfill Project Reporting Protocol) 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 the 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 PDF form that can be filled out and saved as a PDF. All fields must be completed, 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@climateresistry.org.

Be sure to fill out the invoicing contact info below, in order to expedite the process.

Please provide contact information for invoicing purposes:

Name: Mr. Jeff Goetzman, P.E., Assistant Public Works Director

Email: [REDACTED]

Address: [REDACTED]

Phone: [REDACTED]

Fax: [REDACTED]

Version 2.1
July 2008



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Landfill Project Submittal

Form 1: General Landfill Information

1. Date of form completion:

11/05/08

2. Form completed by (name): Thomas A. Henning, P.E.

3. Name of Landfill: Moccasin Mike Landfill, Superior, WI

4. Approximate Latitude/Longitude of Landfill Project (degrees/minutes/seconds):

Latitude 46/40/15 / Longitude 91/58/00

5. Address (including county):

City of Superior, 1316 N. 14th St. Superior, Douglas County, Wisconsin 54880

6. Owner of Landfill and owner contact information:

City of Superior, Mr. Jeff Goetzman, P.E.,

7. Type of landfill (sanitary, controlled, or open dump):

Sanitary

8. Landfill size – designed area for waste placement (acre or hectare):

33 acres

9. Total waste in place (cubic meters or tons): 1,386,000 tons

10. Designed landfill capacity (cubic meters or tonnes): 2.45 million cubic yards (1.8 cubic meters)



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11. Year landfill opened: 1976

12. Year landfill closed or estimated date of closure: 2015

13. Approximation of percent municipal / industrial / inert wastes:
Approximately = 54.6% municipal (which contains a minor fraction of industrial) and 45.5% inert wastes

14. Average annual quantity of waste accepted at landfill (cubic meters or tonnes):

136,000 tons

15. 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 landfill is not subject to the NSPS or EG regulations because the design capacity does not exceed the regulatory threshold. See further discussion in Attachment A.

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

No state or local regulations require the installation of a combustion device to control emissions. See further discussion in Attachment A.



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17. Is this project required by any local, state, or federal regulation? Yes ☐ No ☒

Comments (if any):

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

December 2008

19. Description of waste picker and recycling activities:

Programs are in place to remove recyclable materials (paper, plastic, aluminum and steel) from residential wastes. Disposal restrictions are also in place to discourage disposal of unacceptable materials such as fluorescent bulbs, etc. The majority of the waste is screened at the transfer station

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

A detailed monitoring plan has not been developed, but will be prior to start-up of the process. See Attachment A.

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

22. Have any vintage reduction tons 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.



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22. Waste Characteristics Table

<i>Waste Types</i>	Estimated Percent of Waste Stream
Food Waste	18%
Garden and park waste	included in Food Waste
Wood	28.7%
Paper and textiles	26%
Plastics	10.5%
Concrete	included in Wood Waste
Metal	6.3%
Other Inert waste	10.6

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

Wisconsin Statewide Waste Characterization Study, 2003, Cascadia Consulting Group, Inc.



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Form 2: Pre existing landfill gas control system information

1. Type of existing landfill gas collection and control system in place, if any (e.g., flare, energy recovery etc.):

A series of passive gas wells and vents are currently in place at the landfill

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

- ii. If flare or energy project is in place, what is the landfill gas flow rate (in scfm) and methane content?
No flare or energy project is currently in place.
-

- iii. Supply a copy of the as built drawings for the existing system. (Attach as a separate PDF file titled: Existing LFG System Diagram)
 - iv. Name of system designer, address and other contact information.
-

2. When was this control system installed and operational?
-

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



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Form 3: Landfill gas utilization information for project activity

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

An open flare is proposed to combust landfill gas.

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

December 2008

3. If designed to generate electricity:

- a. 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 :

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

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

-
- d. If interconnected with an electric utility:

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



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e. 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):

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

4. 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):

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

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

- b. Exhaust gas emission controls from gas processing step:



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

Air permit 04-MHR-042 is the current air permit. This permit does not require a flare. A permit application for the flare has been submitted to the Wisconsin Department of Natural Resources.



Attachment A – Supplemental Information

Landfill Gas Project Registration

City of Superior, Wisconsin

Moccasin Mike Landfill

This document supplements the information provided in the City of Superior's (Wisconsin) Landfill Project Submittal Form. The information is prepared in accordance with the Landfill Project Reporting Protocol, Version 2.0, currently in DRAFT form and dated September 2008 ("Protocol").

Project Description

The City of Superior owns and operates the Moccasin Mike Landfill located in Superior, Wisconsin. Moccasin Mike is a municipal solid waste landfill. Currently the landfill has passive wells and vents that discharge landfill gas to the atmosphere. The landfill gas is not controlled.

The City of Superior proposes to expand the landfill gas collection system at the landfill and install and operate an open flare to burn collected landfill gas. As shown below, the installation of the flare is voluntary, i.e. the installation is not required by state, federal or local regulations or other legal actions.

Eligibility

A. Location

Moccasin Mike Landfill is located in Superior, Wisconsin

B. Project Start Date

A flare has not been installed yet. Anticipated startup date is December 2008.

C. Performance Test

The City of Superior proposes to meet the performance criteria of Version 2 of the Protocol by installing and operating an open flare at the Moccasin Mike Landfill. Version 1 of the Protocol specifically excludes open flares from meeting the performance requirements (see footnote 3 on Page 2 of the Protocol). However, we received an email from Mr. Joel Levin, Vice President, Business Development with the California Climate Action Registry indicating that the protocol was being revised to accept projects with open flares; we also obtained a Draft (September 2008) copy of the proposed revisions which will be followed once they are finalized and approved. A copy of the email is included in Attachment B.

We understand that landfills that operate as bioreactors are not eligible project. Accordingly, the Moccasin Mike Landfill will be operated without leachate recirculation so that the landfill is not a bioreactor.

D. Regulatory Test

1) Federal Regulations - The Moccasin Mike Landfill is not subject to the Landfill New Source Performance Standard or Emission Guidelines (40 CFR 60 Subparts WWW and Cc, respectively) because the design capacity is less than the 2.5 million cubic meters.

In fact, air permit for Moccasin Mike (Permit Number 04-MHR-042) issued by the Wisconsin Department of Natural Resources specifically limits the design capacity of the landfill to less than the NSPS/EG thresholds and explains that a flare is not required at Moccasin Mike. Below is an excerpt (Permit Condition A.4) from Permit Number 04-MHR-042):

Condition A.4 from Permit 04-MHR-042

4. Nonmethane Organic Compounds (NMOCs)	(1) The municipal solid waste landfill may not have a design capacity equal to or greater than 2.5 million cubic meters. [40 CFR s. 60.752(a), ss. 285.65(7) & (13), Wis. Stat.] See Note 2.	(1) The permittee shall keep and maintain records that specify the maximum design capacity of the landfill, in cubic meters. [s. NR 439.04(1)(d), Wis. Adm. Code]
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Note 2: According to the permit application, the capacity of the landfill will be 2.45 million cubic yards (or 1.8 million cubic meters). Maintaining the capacity below 2.5 million cubic meters will allow the permittee to not be deemed a part 70 source and – except for the initial design report requirements - exempts the landfill from the requirements specified in the new source performance standard for municipal solid waste landfills. The permit application meets the initial design report requirements [40 CFR s. 60.752(a)]. In addition, the department has determined that the landfill will neither generate enough landfill gas, nor accept sufficient solid waste in the near term to warrant the installation of a flare to control the emission of state hazardous air pollutants. Thus, the department has determined that the landfill should not be required to install an active gas collection system and a landfill gas destruction device.

2) State of Wisconsin Regulations

Solid Waste Rules – The Wisconsin Administrative Code, NR 500 Series (Solid Waste Rules), regulate landfill gas collection systems and active and closed landfills. The Landfill Performance Standards in NR 504.04(4) restrict the offsite migration of explosive gases and require emissions of hazardous air pollutants from landfills to meet the requirements of NR 445 (Wisconsin's air toxics rule, see below for further discussion). However, these rules do not require a flare or other combustion device to meet the requirements.

NR 504.08 regulates the installation of active and passive gas extraction systems at landfills. These regulations require that such systems comply with NR 445. As shown below, uncontrolled emissions from Moccasin Mike Landfill are well under NR 445 thresholds.

Another section of the solid waste rules, NR 506.08, regulates hazardous air emissions from landfills. The rule specifically excludes the need for a flare if uncontrolled emissions from the landfill comply with NR 445 thresholds. The NR 508.08(6) rule language is:

(6) HAZARDOUS AIR CONTAMINANT CONTROL. *All landfills which have a design capacity of greater than 500,000 cubic yards and have accepted municipal solid waste shall install a department approved system to efficiently collect and combust hazardous air contaminants emitted by the landfill within 18 months of February 1, 1988 unless the owner can demonstrate that the performance criteria of s. NR 504.04*

(4) (f) can be achieved without implementing such a system. Control techniques other than combustion may be approved by the department.

Air Quality Rules – Without a control device emissions from the Moccasin Mike Landfill comply with Wisconsin's air toxic rule, NR 445. To demonstrate compliance with NR 445, emissions vented through vertical, unobstructed stacks are compared to emission thresholds listed on Tables A, B, or C in NR 445. The thresholds increase with increasing stack heights. For fugitive emissions from a landfill (that do not vent through a stack), the emission rates must be multiplied by four then compared with the thresholds on Table A, B, or C (see WDNR Guidance Memorandum dated October 20, 2005).

On Table 1 (enclosed), we compare potential emission rates from the Moccasin Mike landfill with the NR 445 thresholds. We base our emission calculations on the maximum expected landfill gas generation rate, 3.5×10^8 cubic feet per year. This landfill gas generation rate is expected to be achieved in 2015. For most compounds, we use the results of analytical testing of the Moccasin Mike landfill gas. The testing was completed during July 2007. For compounds which were not included in the analysis, we used concentrations published by the United States Environmental Protection Agency in the document AP-42.

Potential emissions of regulated hazardous compounds are well below the NR 445 thresholds.

3) Local Rules – The City of Superior has a nuisance odor ordinance. The Moccasin Mike Landfill currently complies with the ordinance. No other county, municipal or other local regulation regulates landfill gas emissions.

Monitoring Program

Monitoring Program for the proposed project is not yet completed. The Monitoring Program will be based on the final design of the gas collection and control system (which is nearly complete) and is expected to contain the following:

- Continuous monitoring of landfill gas flow, temperature and pressure just prior to the flare.
- Initially methane content will be monitored by taking weekly samples. However, the system is being designed to install a continuous methane monitor at a later date.
- An equipment calibration schedule which will be based on the manufacturer's recommendations.
- Other parameters as required by the air permit for the flare.

Summary of Permits

The City of Superior has an air permit for the Moccasin Mike Landfill (Permit Number 04-MHR-042). This permit allows the operation of the landfill and specifically states that a flare is not required.

The City of Superior is submitting an air permit application for the flare installation. The air permit application is required because maximum theoretical emissions from the flare exceed construction permit thresholds provided in NR 406. We expect the air permit to be issued by the end of November 2008.

**Table 1. NR 445 Compliance Evaluation
Moccasin Mike Landfill**

Maximum Landfill Gas Generation Rate

(ft³/yr):

(Landgem, using k=0.04, Lo = 100)

3.50E+08

ft³/yr (RAR Landgem max year 2015)

9.23E+05

lb-mol/yr

Compound	CAS No.	Mole. Wt (g/mol)	Concentration (ppmv)	Potential to Emit (PTE)		PTE * 4		NR 445 Emission Thresholds		Exceed NR 445 Thresholds?
				lb/yr	lb/hr	lb/yr	lb/hr	lb/yr	lb/hr	
1,1,1-Trichloroethane (methyl chloroform) ¹	71-55-6	133.41	0	0	0	0	0	-	-	-
1,1,2,2-Tetrachloroethane ¹	79-34-5	167.85	0	0	0	0	0	-	0.369	No
1,1-Dichloroethane (ethylene dichloride) ¹	75-34-3	98.97	0	0	0	0	0	-	21.7	No
1,1-Dichloroethene (vinylidene chloride) ¹	75-35-4	96.94	0	0	0	0	0	-	1.06	No
1,2-Dichloroethane (ethylene dichloride) ¹	107-06-2	98.96	0	0	0	0	0	68	2.17	No
1,2-Dichloropropane (propylene dichloride) ¹	78-87-5	112.99	0	0	0	0	0	711	18.6	No
Acrylonitrile ¹	107-13-1	53.06	0	0	0	0	0	26	-	No
Benzene ¹	71-43-2	78.11	0.139	9.99	0.0011	40	0.0046	228	-	No
Bromodichloromethane ¹	75-27-4	163.83	0	0	0	0	0	48	-	No
Carbon Disulfide ¹	75-15-0	76.13	0	0	0	0	0	124,381	1.67	No
Carbon Tetrachloride ¹	56-23-5	153.84	0	0	0	0	0	118	-	No
Chlorobenzene ¹	108-90-7	112.56	0.035	3.67	0.00042	15	0.0017	-	2.47	No
Chlorodifluoromethane ²	75-45-6	86.47	1.3	104	0.0119	415	0.0474	8,884,381	-	No
Chloroethane (ethyl chloride) ¹	75-00-3	64.52	0	0	0	0	0	1,776,876	14.2	No
Chloroform ¹	67-66-3	119.39	0	0	0	0	0	77	2.62	No
Chloromethane (methyl chloride) ¹	74-87-3	50.49	0	0	0	0	0	-	5.55	No
Dichlorobenzene ¹	95-50-1	147	0	0	0	0	0	-	8.07	No
Dichloromethane (methylene chloride) ¹	75-09-2	84.93	0.030	2.35	0.00027	9.4	0.0011	3,781	9.33	No
Ethylene dibromide ²	106-93-4	187.88	0.010	0.17	0.00002	0.69	0.000079	177,888	23.3	No
Hexane ¹	110-54-3	86.18	0	0	0	0	0	35,538	9.47	No
Hydrogen Sulfide ¹	7783-06-4	34.08	10.15	319	0.0365	1,278	0.146	-	0.749	No
Mercury ²	7439-97-6	200.61	0.00029	0.05	0.000006	0.22	0.000025	53	0.00134	No
Methyl Isobutyl Ketone (MIBK) ²	108-10-1	100.16	1.87	173	0.020	692	0.079	-	11	No
Perchloroethylene (Tetrachloroethylene) ¹	127-18-4	166.83	0	0	0	0	0	301	9.11	No
trans-1,2-dichloroethene ¹	540-59-0	96.94	0	0	0	0	0	-	42.6	No
Trichloroethylene (Trichloroethene) ¹	79-01-6	131.4	0	0	0	0	0	888	14.4	No
Vinyl Chloride ¹	75-01-4	62.5	0	0	0	0	0	202	-	No
Xylenes ¹	1330-20-7	106.16	1.4	134	0.015	535	0.061	-	23.3	No

¹ Concentration based on average of sampled gas from Cell 4 - GEW-1, GEW-4, collected in July 2007. Note that Nondetect Data is entered as "zero".

² Default concentrations from AP-42 Table 2.4-1, 1998.

Attachment B



"Joel Levin"
<jlevin@climaterestry.org>
08/28/2008 05:48 PM

To <thenning@sehinc.com>
cc "Derek Markolf" <derek@climaterestry.org>
bcc
Subject Open Flares

Tom:

As we discussed, we are planning to modify our landfill gas protocol in the next several months to accept open flares, so this should not be a problem. I understand that you are in the process of filling out the LFG project submittal form. You should make clear on the form that it is an open flare, and the project will be reviewed as such. Once it is listed (which should take several weeks, barring any problems) that should give your client the certainty they need to move forward with the project.

Joel Levin
Vice President, Business Development
California Climate Action Registry
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jlevin@climaterestry.org