Energy Developments Watervliet, LLC

Treatment System Monitoring Plan

Pursuant to 40 CFR 62, Subpart OOO and 40 CFR 63, Subpart AAAA

Michigan EGLE State Registration Number: N5991

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PRESENTED TO

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1.0 BACKGROUND

This Site-Specific Treatment System Monitoring Plan is being prepared because Energy Developments Watervliet, LLC (Watervliet) is or will be subject to control requirements under 40 CFR 62, Subpart OOO and 40 CFR 63, Subpart AAAA. The facility is located at 3563 Hennessey Road, in Watervliet, MI in Berrien County.

Watervliet receives landfill gas (LFG) generated by normal landfill operation from the adjacent Orchard Hill Sanitary Landfill facility (Landfill) via pipeline from the landfill's gas collection and control system (GCCS). The Watervliet facility design includes three internal combustion engines, which use the LFG as fuel to produce electricity for sale. Prior to combustion in the engines, the facility's LFG treatment system treats the LFG through the processes of compression, dewatering, and filtration per the definitions of 40 CFR 62, Subpart OOO and 40 CFR 63, Subpart AAAA (§62.16730 and §63.1990).

A treatment system is one of the acceptable "control systems" for LFG under the above cited rules. As set forth in §62.16714(c)(3) and §63.1959(b)(2)(iii)(C), the owner may:

> ***Route the collected gas to a treatment system that processes the collected gas for subsequent sale or beneficial use such as fuel for combustion... Venting of treated landfill gas to the ambient air is not allowed. If the treated landfill gas cannot be routed for subsequent sale or beneficial use, then the treated landfill gas must be controlled according to §62.16714 (c)(1) or (c)(2)/ §63.1959(b)(2)(iii)(A) or (B).***

When using a treatment system as a control system for LFG subject to NSPS/NESHAP control, monitoring requirements, specifically §62.16722(g) and §63.1961(g), require the owner/operator to:

> ***…maintain and operate all monitoring systems associated with the treatment system in accordance with the site-specific treatment system monitoring plan required in §62.16726(b)(5)(ii) and §63.1983(b)(5)(ii).***

This site-specific treatment system monitoring plan was prepared to satisfy the requirements of §62.16726(b)(5)(ii) and §63.1983(b)(5)(ii) referenced above. These requirements are listed below. Details of compliance are detailed in the following sections for each requirement.

- ***A) Monitoring records of parameters that are identified in the treatment system monitoring plan and that ensure the treatment system is operating properly for each intended end use of the treated landfill gas. At a minimum, records should include records of filtration, de-watering, and compression parameters that ensure the treatment system is operating properly for each intended end use of the treated landfill gas.***
- ***B) Monitoring methods, frequencies, and operating ranges for each monitored operating parameter based on manufacturer's recommendations or engineering analysis for each intended end use of the treated landfill gas.***
- ***C) Documentation of the monitoring methods and ranges, along with justification for their use.***
- ***D) Identify who is responsible (by job title) for data collection.***
- ***E) Processes and methods used to collect the necessary data.***
- ***F) Description of the procedures and methods that are used for quality assurance, maintenance, and repair of all continuous monitoring systems.***

2.0 MONITORING RECORDS

§62.16726(b)(5)(ii)(A)/§63.1983(b)(5)(ii)(A): Monitoring records of parameters that are identified in the treatment system monitoring plan and that ensure the treatment system is operating properly for each intended end use of the treated landfill gas. At a minimum, records should include records of filtration, de-watering, and compression parameters that ensure the treatment system is operating properly for each intended end use of the treated landfill gas.

Table 1 in the following section describes which treatment system equipment parameters will be monitored to indicate proper operation. The Watervliet personnel performing monitoring operations will record the observed value and determine if the value is within the range of operation. If the recorded value is out of the range of operation, they will immediately take corrective action, including contacting all relevant staff, as necessary. Furthermore, collected data and a description of the actions taken will be placed into the plant file.

In addition to the parameters described in **Table 1**, records of flow to the treatment system will also be maintained per §62.16722(g)(1) and §63.1961(g)(1), which require that treatment system flow must be continuously (at least once every 15 minutes) monitored. At Watervliet, the treatment system flow is continuously measured by a flowmeter, which will be maintained and calibrated per manufacturer's recommendations. There is no bypass line from the treatment system at Watervliet. All LFG received from the Landfill's GCCS is routed through the facility treatment system.

Parameter monitoring records will be maintained per §62.16726 and §63.1983, which require that all records must be 5 years up-to-date, readily accessible, on-site. Off-site records may be maintained if they are retrievable within 4 hours. Either paper copy or electronic formats are acceptable.

3.0 MONITORING METHODS, FREQUENCIES, AND OPERATING RANGES

§62.16726 (b)(5)(ii)(B)/§63.1983(b)(5)(ii)(B): Monitoring methods, frequencies, and operating ranges for each monitored operating parameter based on manufacturer's recommendations or engineering analysis for each intended end use of the treated landfill gas.

§62.16726 (b)(5)(ii)(C)/ §63.1983(b)(5)(ii)(C): Documentation of the monitoring methods and ranges, along with justification for their use.

§62.16726 (b)(5)(ii)(E)/§63.1983(b)(5)(ii)(E): Processes and methods used to collect the necessary data.

Table 1 below describes monitoring methods, frequencies, and operating ranges for each monitored treatment operating parameter, justification for each parameter used, and a description of how monitoring data will be collected. The justification for the monitoring methods and ranges for each monitored treatment operating parameter is based on operational experience and/or manufacturer recommendation.

Table 1: Landfill Gas Treatment System Monitoring Plan

Equipment	Treatment Process Description	Monitored Parameter	Inspection Frequency	Monitoring Device	Range of Operation	Basis (Manufacturer/ Engineering Analysis)
Blower/ Compressor	Compression by positive displacement	Discharge Pressure	Monthly	pressure monitoring device	5-20 psi	Manufacturer's Specifications.
Particulate Filters	Filtration of particles < 10 microns in diameter by use of filter media	Filter media use	Monthly	pressure monitoring device	<2.5 psi	Filters are changed when the pressure exceeds 2.5 psi, indicating the efficacy of the filter media is reduced.
Aftercooler	Dewatering by reduction of LFG dew point	Process Temperature	Monthly	temperature gauge	<140°F	Incoming LFG is approximately 200-250°F. The aftercooler is designed to reduce LFG temperature to <140°F to allow for effective removal of moisture and containments.

4.0 RESPONSIBLE PERSONNEL

§62.16726 (b)(5)(ii)(D)/§63.1983(b)(5)(ii)(D): Identify who is responsible (by job title) for data collection.

The table below details the specific supervisory and field personnel responsible for overseeing the inspections for the routine monitoring activities of the affected equipment detailed in this plan.

Table 2: Responsible Personnel

Title
Compliance Manager
Region Manager
Maintenance Manager
Plant Operator

5.0 CONTINUOUS MONITORING

§62.16726 (b)(5)(ii)(F)/§63.1983(b)(5)(ii)(F): Description of the procedures and methods that are used for quality assurance, maintenance, and repair of all continuous monitoring systems.

Continuous monitoring data (CMS) data is reviewed monthly at a minimum to verify accuracy and to evaluate for trends that may be characteristic of diminishing performance. Staff will perform visual inspections of the equipment and note issues as they arise. CMS component repairs and/or replacement will be made as necessary.