PERMIT
Under the Environmental Conservation Law (ECL)

IDENTIFICATION INFORMATION

Permit Type: Air State Facility
Permit ID: 9-1468-00224/00002
Mod 0 Effective Date: 04/05/2013 Expiration Date: 04/04/2018

Mod 1 Effective Date: 09/16/2013 Expiration Date: 04/04/2018

Permit Issued To:SUSTAINABLE BIOPOWER LLC
50 PUBLIC SQ STE 1060
CLEVELAND, OH 44113

Contact: BRUCE BAILEY
50 PUBLIC SQUARE STE 1060
CLEVELAND, OH 44113
(216) 986-9999

Facility: BUFFALO BIOENERGY ANAEROBIC DIGESTION FACILITY
2900 N AMERICA DR
WEST SENECA, NY 14224

Description:

BUFFALO BIOENERGY ANAEROBIC DIGESTION SYSTEM FACILITY
DEC ID NO. 9-1468-00224
PERMIT DESCRIPTION

Sustainable BioPower, LLC owns and operates Buffalo Bioenergy Anaerobic Digestion System Facility (Buffalo Bioenergy/Facility), a combined heat and power, renewable energy facility located at 4852 North America Drive in the Town of West Seneca, Erie County, New York. The Facility generates approximately 204.2 million cubic feet of biogas each year through anaerobic digestion of 52,524 wet tons of biomass. Electric generation potential for the Facility is 13.05 million kWhr/year based on 35 % generator efficiency.

Buffalo Bioenergy accepts liquid and solid biomass from local sources, including sewage sludge, food and agricultural waste, used food grade fat/oil/grease (FOG), animal manure and bioenergy production wastes from the manufacture of ethanol and biodiesel. The solid and liquid biomasses are ground, combined and macerated, then sent to the feedstock equalization tank where anaerobic digestion (microbial degradation of biomass in the absence of

oxygen) and biogas production are initiated. After 10 to 12 days, the biomass enters the complete mix, anaerobic digester tank where it undergoes further degradation and biogas production. The anaerobic digestion process has a total retention time of up to 30 days and is monitored by a SCADA (supervisory control and data acquisition) computer control system. The biogas generated consists of approximately 60% methane (CH_4) and 40% carbon dioxide (CO_2), with smaller and trace amounts of other compounds including nitrogen (N_2), oxygen (O_2), volatile organic compounds (VOCs), hydrogen sulfide (H_2S), ammonia (NH_3), water and siloxanes. Hydrogen sulfide contained in the raw biogas is highly corrosive and is removed through a microbial desulfurization process. Post digester biogas desulfurization takes place when necessary. The treated biogas is then sent to a spark ignition (SI) reciprocating internal combustion engine (RICE) that generates electricity for sale and for onsite use. To maintain the proper operating temperature for anaerobic digestion, waste heat, generated by the SI RICE, is circulated to the equalization and digester tanks via a heat exchanger process. A utility backup flare is used to control biogas emissions when the SI RICE is not operating. The SI RICE and utility flare do not operate simultaneously.

Odor at the facility is controlled by maintaining negative pressure in the receiving/loading operations building and collection system to capture fugitive emissions of H_2S, NH_3 and odiferous VOCs. Captured emissions are sent to a biofilter where they undergo aerobic biodegradation to remove pollutants and odor. Activated carbon is used as back-up control for fugitive emissions when the biofilter is not operating or not functioning properly.

The Air State Facility (ASF) permit includes one emission unit: 1-ANDIG, which consists of two processes. Process 001 (anaerobic digestion, electricity production, biogas emissions control) consists of one 230,000 gallon biomass feedstock equalization tank (Emission Source (ES) EQTNK), one 750,000 gallon complete mix, anaerobic digester tank (ES DGTNK), a supplemental H2S removal system (ESC DSULF), one 2233 bhp (1600 kW) Caterpillar G3520C SI reciprocating internal combustion engine (ES ENG01) and a backup utility flare identified as Emission Source Control (ESC) FLARE. Emissions from ES ENG01 and ESC FLARE are exhausted to the atmosphere through Emission Point (EP) 00001 and EP 00002, respectively. Process 002 (receiving/loading operations and odor control) consists of one 12,000 gallon liquid biomass receiving tank (ES RECLQ), one 30 cubic yard solid biomass receiving pit (ES RECSD), and the loading of digestate into tanker trucks for offsite disposal or land application (ES WASTE). Process 002 emission sources are located inside and outside Building 1-MAIN. Emissions from Process

002 are controlled by a 40 cubic yard biofilter, identified as ESC FILTR, with activated carbon canisters (ESC ACARB) as backup control.

The SI RICE is subject to the requirements of 40CFR60, Subpart JJJJ and 40 CFR63, Subpart ZZZZ for noncertified engines greater than 500 HP. Compliance with Subpart JJJJ fulfills Subpart ZZZZ requirements for the SI RICE. Under Subpart JJJJ, Buffalo Bioenergy must conduct an initial performance test within the first year of operation to determine compliance with oxides of nitrogen (NOx as NO_2), carbon monoxide (CO) and VOC standards and must conduct subsequent stack tests every 8760 hrs of operation or 3 years, whichever comes first. Engine emissions are limited to the manufacturer's guaranty for NO_2 and the manufacturer's "Not to Exceed" value for CO to comply with the 1-hr NO_2 National Ambient Air Quality Standard (NAAQS) and to avoid title V capping requirements for CO. Periodic monitoring of CO and NO_2 in the engine exhaust is required. Buffalo Bioenergy is required to prepare and implement a maintenance plan for the SI ICE in accordance with the manufacturer's recommendations and good engineering practice. The backup utility flare is subject to the requirements of 40CFR60.18, with compliance monitored by a continuous temperature recorder and a gas flow rate monitoring device. To comply with the 1-hr NAAQS for sulfur dioxide (SO_2), the concentration of H_2S in the biogas combusted in the engine or flare is limited and periodic monitoring is required. Formaldehyde emissions from the engine are also limited to meet the NYSDEC annual and short-term guideline concentrations.

The biofilter is regulated under 6NYCRR212.9 for VOCs, H_2S and NH_3 emissions. Since H_2S is toxic and both H_2S and NH_3 have low odor thresholds, the potential impact of these emissions on the surrounding community is a concern. To minimize odor and to comply with the 1-hr NYS AAQS for H_2S, Buffalo Bioenergy is required to operate the biofilter in a manner that optimizes microbial degradation of VOCs, H_2S and NH_3. Several biofilter operating parameters, including pH, temperature, moisture, and differential pressure, require monitoring to ensure a minimum 90% removal efficiency. Monitoring of the concentration of H_2S in the inlet to the biofilter is required. If odor becomes a problem, Buffalo Bioenergy shall be required to make changes to the odor control system to correct the problem and conduct a performance test to determine removal efficiency of the biofilter. Buffalo Bioenergy must submit an Operation and Maintenance (O&M) Plan for the biofilter and a Method 204 O&M Plan for capture of fugitive emissions from the receiving/loading area to comply with

6NYCRR212.9 and 6NYCRR211.1, respectively. An O&M Plan is required for the anaerobic digester and equalization tanks. To prevent the formation of dioxin and furans during the combustion process, Buffalo Bioenergy is prohibited from receiving any biomass waste that may result in the generation of chlorinated compounds in the biogas and must verify this through a waste manifest system.

An air quality modeling analysis using AERSCREEN/AERMOD was completed for NO_2, SO_2 and other contaminants from the engine/flare and H_2S and NH_3 emissions from the biofilter. Based on the permit restrictions described previously, AERSCREEN/AERMOD results showed that offsite ambient air concentrations of these contaminants were below their short-term/annual guideline concentrations and 1-hr NAAQS/NYSAAQS. The ASF permit requires that formaldehyde (CH_2O) emissions resulting from the combustion of biogas in the engine be determined via stack test and analyzed using AERSCREEN/AERMOD. Control equipment will be required if the ambient concentration of CH_2O at the property line exceeds the short-term and/or annual guideline concentrations for CH_2O.

The ASF permit specifies monitoring, record keeping and reporting requirements for operations at Buffalo Bioenergy. All records must be maintained onsite for a minimum of five years and must be readily available upon request by NYSDEC representatives(s).

By acceptance of this permit, the permittee agrees that the permit is contingent upon strict compliance with the ECL, all applicable regulations, the General Conditions specified and any Special Conditions included as part of this permit.

Permit Administrator: LISA PORTER
270 MICHIGAN AVE
BUFFALO, NY 14203-2915

Authorized Signature: Lisa M. Porta Date: 9 / 16 / 13

Notification of Other State Permittee Obligations

Item A: Permittee Accepts Legal Responsibility and Agrees to Indemnification

The permittee expressly agrees to indemnify and hold harmless the Department of Environmental Conservation of the State of New York, its representatives, employees and agents ("DEC") for all claims, suits, actions, and damages, to the extent attributable to the permittee's acts or omissions in connection with the compliance permittee's undertaking of activities in connection with, or operation and maintenance of, the facility or facilities authorized by the permit whether in compliance or not in any compliance with the terms and conditions of the permit. This indemnification does not extend to any claims, suits, actions, or damages to the extent attributable to DEC's own negligent or intentional acts or omissions, or to any claims, suits, or actions naming the DEC and arising under article 78 of the New York Civil Practice Laws and Rules or any citizen suit or civil rights provision under federal or state laws.

Item B: Permittee's Contractors to Comply with Permit

The permittee is responsible for informing its independent contractors, employees, agents and assigns of their responsibility to comply with this permit, including all special conditions while acting as the permittee's agent with respect to the permitted activities, and such persons shall be subject to the same sanctions for violations of the Environmental Conservation Law as those prescribed for the permittee.

Item C: Permittee Responsible for Obtaining Other Required Permits

The permittee is responsible for obtaining any other permits, approvals, lands, easements and rights-of-way that may be required to carry out the activities that are authorized by this permit.

Item D: No Right to Trespass or Interfere with Riparian Rights

This permit does not convey to the permittee any right to trespass upon the lands or interfere with the riparian rights of others in order to perform the permitted work nor does it authorize the impairment of any rights, title, or interest in real or personal property held or vested in a person not a party to the permit.

PAGE LOCATION OF CONDITIONS

PAGE

DEC GENERAL CONDITIONS
General Provisions
4 1 Facility Inspection by the Department
4 2 Relationship of this Permit to Other Department Orders and Determinations
4 3 Applications for permit renewals, modifications and transfers
5 4 Permit modifications, suspensions or revocations by the Department
Facility Level
5 5 Submission of application for permit modification or renewal-REGION 9 HEADQUARTERS

DEC GENERAL CONDITIONS
****** General Provisions ******
GENERAL CONDITIONS - Apply to ALL Authorized Permits.

Condition 1: Facility Inspection by the Department
Applicable State Requirement: ECL 19-0305

Item 1.1:
The permitted site or facility, including relevant records, is subject to inspection at reasonable hours and intervals by an authorized representative of the Department of Environmental Conservation (the Department) to determine whether the permittee is complying with this permit and the ECL. Such representative may order the work suspended pursuant to ECL 71-0301 and SAPA 401(3).

Item 1.2:
The permittee shall provide a person to accompany the Department's representative during an inspection to the permit area when requested by the Department.

Item 1.3:
A copy of this permit, including all referenced maps, drawings and special conditions, must be available for inspection by the Department at all times at the project site or facility. Failure to produce a copy of the permit upon request by a Department representative is a violation of this permit.

Condition 2: Relationship of this Permit to Other Department Orders and Determinations
Applicable State Requirement: ECL 3-0301 (2) (m)

Item 2.1:
Unless expressly provided for by the Department, issuance of this permit does not modify, supersede or rescind any order or determination previously issued by the Department or any of the terms, conditions or requirements contained in such order or determination.

Condition 3: Applications for permit renewals, modifications and transfers
Applicable State Requirement: 6 NYCRR 621.11

Item 3.1:
The permittee must submit a separate written application to the Department for renewal, modification or transfer of this permit. Such application must include any forms or supplemental information the Department requires. Any renewal, modification or transfer granted by the Department must be in writing.

Item 3.2:
The permittee must submit a renewal application at least 180 days before expiration of permits for Title V Facility Permits, or at least 30 days before expiration of permits for State Facility Permits.

Item 3.3:
Permits are transferrable with the approval of the department unless specifically prohibited by the statute, regulation or another permit condition. Applications for permit transfer should be submitted prior to actual transfer of ownership.

Condition 4: Permit modifications, suspensions or revocations by the Department
Applicable State Requirement: 6 NYCRR 621.13

Item 4.1:
The Department reserves the right to exercise all available authority to modify, suspend, or revoke this permit in accordance with 6NYCRR Part 621. The grounds for modification, suspension or revocation include:

a) materially false or inaccurate statements in the permit application or supporting papers;
b) failure by the permittee to comply with any terms or conditions of the permit;
c) exceeding the scope of the project as described in the permit application;
d) newly discovered material information or a material change in environmental conditions, relevant technology or applicable law or regulations since the issuance of the existing permit;
e) noncompliance with previously issued permit conditions, orders of the commissioner, any provisions of the Environmental Conservation Law or regulations of the Department related to the permitted activity.

****** Facility Level ******

Condition 5: Submission of application for permit modification or renewal-REGION 9 HEADQUARTERS
Applicable State Requirement: 6 NYCRR 621.6 (a)

Item 5.1:
Submission of applications for permit modification or renewal are to be submitted to:

NYSDEC Regional Permit Administrator
Region 9 Headquarters
Division of Environmental Permits
270 Michigan Avenue
Buffalo, NY 14203-2915
(716) 851-7165

Permit Under the Environmental Conservation Law (ECL)

ARTICLE 19: AIR POLLUTION CONTROL - AIR STATE FACILITY PERMIT

IDENTIFICATION INFORMATION

Permit Issued To:SUSTAINABLE BIOPOWER LLC
50 PUBLIC SQ STE 1060
CLEVELAND, OH 44113

Facility: BUFFALO BIOENERGY ANAEROBIC DIGESTION FACILITY
2900 N AMERICA DR
WEST SENECA, NY 14224

Authorized Activity By Standard Industrial Classification Code:
4953 - REFUSE SYSTEMS

Mod 0 Permit Effective Date: 04/05/2013 Permit Expiration Date: 04/04/2018

Mod 1 Permit Effective Date: 09/16/2013 Permit Expiration Date: 04/04/2018

PAGE LOCATION OF CONDITIONS

PAGE	
	FEDERALLY ENFORCEABLE CONDITIONS
	Facility Level
7	1 6 NYCRR 211.1: Air pollution prohibited
7	2 40CFR 60, NSPS Subpart JJJJ: Applicability
8	3 40CFR 60.4246, NSPS Subpart JJJJ: Subpart A provisions that apply to facilities subject to Subpart JJJJ
	Emission Unit Level
	EU=1-ANDIG,Proc=001
8	4 6 NYCRR 212.9 (b): Compliance Demonstration
8	5 6 NYCRR 212.9 (b): Compliance Demonstration
	EU=1-ANDIG,Proc=001,ES=DGTNK
9	6 6 NYCRR 212.9 (b): Compliance Demonstration
10	7 6 NYCRR 212.9 (b): Compliance Demonstration
	EU=1-ANDIG,Proc=002
12	8 6 NYCRR 211.1: Compliance Demonstration
	EU=1-ANDIG,Proc=002,ES=FILTR
13	9 6 NYCRR 212.9 (b): Compliance Demonstration
14	10 6 NYCRR 212.9 (b): Compliance Demonstration
15	11 6 NYCRR 212.9 (b): Compliance Demonstration
17	12 6 NYCRR 212.9 (b): Compliance Demonstration
18	13 6 NYCRR 212.9 (b): Compliance Demonstration
18	14 6 NYCRR 212.9 (b): Compliance Demonstration
	EU=1-ANDIG,EP=00001,Proc=001,ES=ENG01
20	15 6 NYCRR 212.9 (b): Compliance Demonstration
22	16 40CFR 60.4230(a)(4)(i), NSPS Subpart JJJJ: Applicability of facilities subject to Subpart JJJJ
22	17 40CFR 60.4233(e), NSPS Subpart JJJJ: Compliance Demonstration
24	18 40CFR 60.4233(e), NSPS Subpart JJJJ: Compliance Demonstration
25	19 40CFR 60.4233(e), NSPS Subpart JJJJ: Compliance Demonstration
26	20 40CFR 60.4233(e), NSPS Subpart JJJJ: Compliance Demonstration
27	21 40CFR 60.4234, NSPS Subpart JJJJ: Length of time a facility is subject to Subpart JJJJ
27	22 40CFR 60.4243(b)(2)(ii), NSPS Subpart JJJJ: Compliance Demonstration
28	23 40CFR 60.4244, NSPS Subpart JJJJ: Test methods and procedures
28	24 40CFR 60.4245(a), NSPS Subpart JJJJ: Compliance Demonstration
29	25 40CFR 60.4245(c), NSPS Subpart JJJJ: Compliance Demonstration
29	26 40CFR 63.6590(c), Subpart ZZZZ: Stationary RICE subject to regulations under 40 CFR Part 60
	EU=1-ANDIG,EP=00002,Proc=001,ES=FLARE
30	27 6 NYCRR 212.9 (b): Compliance Demonstration
	STATE ONLY ENFORCEABLE CONDITIONS

	Facility Level
33	28 ECL 19-0301: Contaminant List
34	29 6 NYCRR 201-1.4: Malfunctions and start-up/shutdown activities
35	30 6 NYCRR Subpart 201-5: Emission Unit Definition
35	31 6 NYCRR 201-5.2 (c): Renewal deadlines for state facility permits
36	32 6 NYCRR 201-5.3 (c): Compliance Demonstration
36	33 6 NYCRR 211.2: Visible Emissions Limited
	Emission Unit Level
36	34 6 NYCRR Subpart 201-5: Emission Point Definition By Emission Unit
37	35 6 NYCRR Subpart 201-5: Process Definition By Emission Unit

FEDERALLY ENFORCEABLE CONDITIONS
****** Facility Level ******

NOTIFICATION OF GENERAL PERMITTEE OBLIGATIONS
This section contains terms and conditions which are federally enforceable. Permittees may also have other obligations under regulations of general applicability

Item A: **Sealing - 6 NYCRR 200.5**

The Commissioner may seal an air contamination source to prevent its operation if compliance with 6 NYCRR Chapter III is not met within the time provided by an order of the Commissioner issued in the case of the violation. Sealing means labeling or tagging a source to notify any person that operation of the source is prohibited, and also includes physical means of preventing the operation of an air contamination source without resulting in destruction of any equipment associated with such source, and includes, but is not limited to, bolting, chaining or wiring shut control panels, apertures or conduits associated with such source.

No person shall operate any air contamination source sealed by the Commissioner in accordance with this section unless a modification has been made which enables such source to comply with all requirements applicable to such modification.

Unless authorized by the Commissioner, no person shall remove or alter any seal affixed to any contamination source in accordance with this section.

Item B: **Acceptable Ambient Air Quality - 6 NYCRR 200.6**

Notwithstanding the provisions of 6 NYCRR Chapter III, Subchapter A, no person shall allow or permit any air contamination source to emit air contaminants in quantities which alone or in combination with emissions from other air contamination sources would contravene any applicable ambient air quality standard and/or cause air pollution. In such cases where contravention occurs or may occur, the Commissioner shall specify the degree and/or method of emission control required.

Item C: **Maintenance of Equipment - 6 NYCRR 200.7**

Any person who owns or operates an air contamination source which is equipped with an emission control device shall operate such device and keep it in a satisfactory state of maintenance and repair in accordance with ordinary and necessary practices, standards and procedures, inclusive of manufacturer's specifications, required to operate such device effectively.

Item D: **Unpermitted Emission Sources - 6 NYCRR 201-1.2**

If an existing emission source was subject to the permitting requirements of 6 NYCRR Part 201 at the time of construction or

modification, and the owner and/or operator failed to apply for a permit for such emission source then the following provisions apply:

(a) The owner and/or operator must apply for a permit for such emission source or register the facility in accordance with the provisions of Part 201.

(b) The emission source or facility is subject to all regulations that were applicable to it at the time of construction or modification and any subsequent requirements applicable to existing sources or facilities.

Item E: Emergency Defense - 6 NYCRR 201-1.5

An emergency constitutes an affirmative defense to an action brought for noncompliance with emissions limitations or permit conditions for all facilities in New York State.

(a) The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that:

(1) An emergency occurred and that the facility owner and/or operator can identify the cause(s) of the emergency;
(2) The equipment at the permitted facility causing the emergency was at the time being properly operated;
(3) During the period of the emergency the facility owner and/or operator took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in the permit; and
(4) The facility owner and/or operator notified the Department within two working days after the event occurred. This notice must contain a description of the emergency, any steps taken to mitigate emissions, and corrective actions taken.

(b) In any enforcement proceeding, the facility owner and/or operator seeking to establish the occurrence of an emergency has the burden of proof.

(c) This provision is in addition to any emergency or upset provision contained in any applicable requirement.

Item F: Recycling and Salvage - 6 NYCRR 201-1.7

Where practical, any person who owns or operates an air contamination source shall recycle or salvage air contaminants collected in an air cleaning device according to the requirements of 6 NYCRR.

Item G: Prohibition of Reintroduction of Collected Contaminants to the Air - 6 NYCRR 201-1.8

No person shall unnecessarily remove, handle, or cause to be handled,

collected air contaminants from an air cleaning device for recycling, salvage or disposal in a manner that would reintroduce them to the outdoor atmosphere.

Item H: **Proof of Eligibility for Sources Defined as Exempt Activities - 6 NYCRR 201-3.2 (a)**
The owner and/or operator of an emission source or unit that is eligible to be exempt, may be required to certify that it operates within the specific criteria described in 6 NYCRR Subpart 201-3. The owner or operator of any such emission source must maintain all required records on-site for a period of five years and make them available to representatives of the Department upon request. Department representatives must be granted access to any facility which contains emission sources or units subject to 6 NYCRR Subpart 201-3, during normal operating hours, for the purpose of determining compliance with this and any other state and federal air pollution control requirements, regulations, or law.

Item I: **Proof of Eligibility for Sources Defined as Trivial Activities - 6 NYCRR 201-3.3 (a)**
The owner and/or operator of an emission source or unit that is listed as being trivial in 6 NYCRR Part 201 may be required to certify that it operates within the specific criteria described in 6 NYCRR Subpart 201-3. The owner or operator of any such emission source must maintain all required records on-site for a period of five years and make them available to representatives of the Department upon request. Department representatives must be granted access to any facility which contains emission sources or units subject to 6 NYCRR Subpart 201-3, during normal operating hours, for the purpose of determining compliance with this and any other state and federal air pollution control requirements, regulations, or law.

Item J: **Required Emission Tests - 6 NYCRR 202-1.1**

An acceptable report of measured emissions shall be submitted, as may be required by the Commissioner, to ascertain compliance or noncompliance with any air pollution code, rule, or regulation. Failure to submit a report acceptable to the Commissioner within the time stated shall be sufficient reason for the Commissioner to suspend or deny an operating permit. Notification and acceptable procedures are specified in 6 NYCRR Subpart 202-1.

Item K: **Open Fires Prohibitions - 6 NYCRR 215.2**
Except as allowed by section 215.3 of 6 NYCRR Part 215, no person shall burn, cause, suffer, allowor permit the burning of any materials in an open fire.

Item L: **Permit Exclusion - ECL 19-0305**
The issuance of this permit by the Department and the receipt thereof by the Applicant does not and shall not be construed as barring, diminishing, adjudicating or in any way affecting any legal, administrative or equitable rights or claims, actions, suits, causes

of action or demands whatsoever that the Department may have against the Applicant for violations based on facts and circumstances alleged to have occurred or existed prior to the effective date of this permit, including, but not limited to, any enforcement action authorized pursuant to the provisions of applicable federal law, the Environmental Conservation Law of the State of New York (ECL) and Chapter III of the Official Compilation of the Codes, Rules and Regulations of the State of New York (NYCRR). The issuance of this permit also shall not in any way affect pending or future enforcement actions under the Clean Air Act brought by the United States or any person.

Item M: **Federally Enforceable Requirements - 40 CFR 70.6 (b)**
All terms and conditions in this permit required by the Act or any applicable requirement, including any provisions designed to limit a facility's potential to emit, are enforceable by the Administrator and citizens under the Act. The Department has, in this permit, specifically designated any terms and conditions that are not required under the Act or under any of its applicable requirements as being enforceable under only state regulations.

FEDERAL APPLICABLE REQUIREMENTS
The following conditions are federally enforceable.

Condition 1: **Air pollution prohibited**
Effective between the dates of 04/05/2013 and 04/04/2018

Applicable Federal Requirement:6 NYCRR 211.1

Item 1.1:
No person shall cause or allow emissions of air contaminants to the outdoor atmosphere of such quantity, characteristic or duration which are injurious to human, plant or animal life or to property, or which unreasonably interfere with the comfortable enjoyment of life or property. Notwithstanding the existence of specific air quality standards or emission limits, this prohibition applies, but is not limited to, any particulate, fume, gas, mist, odor, smoke, vapor, pollen, toxic or deleterious emission, either alone or in combination with others.

Condition 2: **Applicability**
Effective between the dates of 04/05/2013 and 04/04/2018

Applicable Federal Requirement:40CFR 60, NSPS Subpart JJJJ

Item 2.1:
Facilities that have stationary spark ignition internal combustion engines must comply with applicable portions of 40 CFR 60 subpart JJJJ.

Condition 3: **Subpart A provisions that apply to facilities subject to Subpart JJJJ**

Effective between the dates of 04/05/2013 and 04/04/2018

Applicable Federal Requirement:40CFR 60.4246, NSPS Subpart JJJJ

Item 3.1:
The following provisions of 40 CFR 60 Subpart A apply to this facility: 60.1 through 60.12, 60.14 through 60.17 and 60.19.

****** Emission Unit Level ******

Condition 4: Compliance Demonstration
Effective between the dates of 04/05/2013 and 04/04/2018

Applicable Federal Requirement:6 NYCRR 212.9 (b)

Item 4.1:
The Compliance Demonstration activity will be performed for:

Emission Unit: 1-ANDIG
Process: 001

Item 4.2:
Compliance Demonstration shall include the following monitoring:

Monitoring Type: RECORD KEEPING/MAINTENANCE PROCEDURES
Monitoring Description:

Buffalo Bioenergy ADS Facility (Buffalo Bioenergy) shall prepare and submit an Operation and Maintenance (O&M) Plan for the Anaerobic Digester (ES DGTNK) and Equalization Tank (EQTNK), which shall be based on manufacturer's recommendations/specifications and/or accepted methods. The O&M Plan shall include process parameters monitored and monitoring methods used to ensure proper performance of the digester; start-up procedures; sampling and analysis; cleaning procedures and maintenance schedules (daily, weekly, monthly, quarterly, semiannual and/or annual); procedures used to minimize fugitive emissions/odors during routine maintenance and repair; potential process upsets/failure and corrective actions taken/alternative procedures followed; emergency shutdown procedures; and any other pertinent information. The O & M Plan shall be submitted to the Department within 60 days of permit issuance. Anaerobic Digester/Equalization Tank operation and maintenance shall be recorded in a permanently bound logbook or electronically on a secure server. All O&M records shall be maintained on site for at least five years and be readily available upon request by NYSDEC.

Monitoring Frequency: AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION
Reporting Requirements: AS REQUIRED - SEE MONITORING DESCRIPTION

Condition 5: Compliance Demonstration
Effective between the dates of 04/05/2013 and 04/04/2018

Applicable Federal Requirement:6 NYCRR 212.9 (b)

Item 5.1:
The Compliance Demonstration activity will be performed for:

Emission Unit: 1-ANDIG
Process: 001

Item 5.2:
Compliance Demonstration shall include the following monitoring:

Monitoring Type: RECORD KEEPING/MAINTENANCE PROCEDURES
Monitoring Description:
To prevent the formation and emission of dioxins/furans from Emission Source (ES) ENG01 and ES FLARE, Buffalo Bioenergy shall not accept or process any waste that has the potential to generate chlorinated compounds through the anaerobic digestion process. Buffalo Bioenergy shall develop and maintain a waste manifest system to document waste receipt and compliance with this requirement. All records shall be maintained onsite for a minimum of five years and shall be readily available upon request by NYSDEC.

Monitoring Frequency: PER DELIVERY
Reporting Requirements: UPON REQUEST BY REGULATORY AGENCY

Condition 6: Compliance Demonstration
Effective between the dates of 04/05/2013 and 04/04/2018

Applicable Federal Requirement:6 NYCRR 212.9 (b)

Item 6.1:
The Compliance Demonstration activity will be performed for:

Emission Unit: 1-ANDIG
Process: 001 Emission Source: DGTNK

Regulated Contaminant(s):
CAS No: 007446-09-5 SULFUR DIOXIDE

Item 6.2:
Compliance Demonstration shall include the following monitoring:

Monitoring Type: MONITORING OF PROCESS OR CONTROL DEVICE PARAMETERS AS SURROGATE
Monitoring Description:
The National primary 1-hour ambient air quality standard for sulfur oxides is 75 parts per billion or 196 ug/m3, measured in the ambient air as sulfur dioxide (SO2). The digester gas (biogas) contains hydrogen sulfide (H2S), which when combusted produces sulfur dioxide. To ensure that SO2 in the exhaust from the engine alone does not cause property line concentrations to exceed the primary 1-hour National Ambient Air Quality Standard for SO2, H2S concentration in the biogas

shall be limited to 400 ppmv.

Buffalo Bioenergy controls the H2S concentration in biogas via biological fixation of H2S by sulfur-oxidizing bacteria. The digester tank roof straps provide the surface area to support the microbes that oxidize H2S to elemental sulfur, which is precipitated into the digestate in ES DGTNK. To prevent exceedance of the 1-hr SO2 NAAQS, Buffalo Bioenergy shall conduct daily monitoring of the concentration of H2S in the biogas prior to combustion in the engine using a portable analyzer able to measure and record H2S accurately to the satisfaction of the department. Readings taken for H2S shall be recorded and stored electronically as part of the SCADA system on a secure server. The H2S analyzer shall be calibrated, maintained and operated in accordance with manufacturer's specifications/recommendations. The name of the person who conducted the sampling, equipment identification, calibration details and any other pertinent information that can be used to verify compliance with this limit shall be recorded electronically or in a permanently bound logbook.

If the biological oxidation of H2S in DGTNK fails to reduce the H2S in the biogas to a concentration that is in compliance with the specified H2S limit, the biogas shall undergo additional desulfurization via emission source control (ESC) DSULF prior to combustion in the engine. Whenever additional desulfurization is required, daily H2S monitoring of the biogas shall be conducted at a location after ESC DSULF. The supplemental desulfurization process shall not result in additional onsite SO2 formation or the release of H2S. Equipment associated with ESC DSULF shall be operated and maintained in accordance with the manufacturer's recommendations. All maintenance, calibration and other activities associated with ESC DSULF shall be recorded electronically or in a permanently bound logbook.

All records shall be maintained onsite for a minimum of 5 years and shall be readily available for NYSDEC review upon request.

Note: An air quality impact analysis of SO2 emissions from the engine was conducted using the AERSCREEN model. Based on the maximum capacity of the engine, it was determined that the hydrogen sulfide concentration in the biogas combusted in the engine cannot exceed 524 ppmv to meet the 1-hr SO2 NAAQS at the property line. However, the engine warranty limits H2S concentration to 400 ppmv.

Parameter Monitored: HYDROGEN SULFIDE
Upper Permit Limit: 400 parts per million (by volume)
Monitoring Frequency: DAILY
Averaging Method: 1-HOUR AVERAGE
Reporting Requirements: AS REQUIRED - SEE MONITORING DESCRIPTION

Condition 7: Compliance Demonstration
Effective between the dates of 04/05/2013 and 04/04/2018

Applicable Federal Requirement:6 NYCRR 212.9 (b)

Item 7.1:
The Compliance Demonstration activity will be performed for:

Emission Unit: 1-ANDIG
Process: 001 Emission Source: DGTNK

Regulated Contaminant(s):
CAS No: 007446-09-5 SULFUR DIOXIDE

Item 7.2:
Compliance Demonstration shall include the following monitoring:

Monitoring Type: MONITORING OF PROCESS OR CONTROL DEVICE PARAMETERS AS SURROGATE
Monitoring Description:

The National primary 1-hour ambient air quality standard for sulfur oxides is 75 parts per billion or 196 ug/m3, measured in the ambient air as sulfur dioxide (SO2). The digester gas (biogas) contains hydrogen sulfide (H2S), which when combusted produces sulfur dioxide. To ensure that SO2 in the exhaust from the flare alone does not cause property line concentrations to exceed the primary 1-hour National Ambient Air Quality Standard for SO2, hydrogen sulfide concentration in the biogas shall be limited to 688 ppmv.

Buffalo Bioenergy controls the H2S concentration in biogas via biological fixation of H2S by sulfur-oxidizing bacteria. The digester tank roof straps provide the surface area to support the microbes that oxidize H2S to elemental sulfur, which is precipitated into the digestate in ES DGTNK. To prevent exceedance of the 1-hr SO2 NAAQS, Buffalo Bioenergy shall conduct daily monitoring of the concentration of H2S in the biogas prior to combustion in the flare using a portable analyzer able to measure and record H2S accurately to the satisfaction of the department. Readings taken for H2S shall be recorded and stored electronically as part of the SCADA system on a secure server. The H2S analyzer shall be calibrated, maintained and operated in accordance with manufacturer's specifications/recommendations. The name of the person who conducted the sampling, equipment identification, calibration details and any other pertinent information that can be used to verify compliance with this limit shall be recorded electronically or in a permanently bound logbook.

If the biological oxidation of H2S in DGTNK fails to reduce the H2S in the biogas to a concentration that is in compliance with the specified H2S limit, the biogas shall undergo additional desulfurization via emission source control (ESC) DSULF prior to combustion in the flare. Whenever additional desulfurization is required, daily H2S monitoring of the biogas shall be conducted at a location after ESC DSULF. The supplemental desulfurization process shall not result in additional onsite SO2 formation or the release of H2S. Equipment associated with ESC DSULF shall be operated and maintained in accordance with

manufacturer's recommendations. All maintenance, calibration and other activities associated with ESC DSULF shall be recorded electronically or in a permanently bound logbook.

All records shall be maintained onsite for a minimum of 5 years and shall be readily available for NYSDEC review upon request.

Parameter Monitored: HYDROGEN SULFIDE
Upper Permit Limit: 688 parts per million (by volume)
Monitoring Frequency: DAILY
Averaging Method: 1-HOUR AVERAGE
Reporting Requirements: AS REQUIRED - SEE MONITORING DESCRIPTION

Condition 8: Compliance Demonstration
Effective between the dates of 04/05/2013 and 04/04/2018

Applicable Federal Requirement:6 NYCRR 211.1

Item 8.1:
The Compliance Demonstration activity will be performed for:

Emission Unit: 1-ANDIG
Process: 002

Regulated Contaminant(s):

CAS No: 007664-41-7	AMMONIA
CAS No: 0NY998-00-0	VOC
CAS No: 007783-06-4	HYDROGEN SULFIDE

Item 8.2:
Compliance Demonstration shall include the following monitoring:

Monitoring Type: MONITORING OF PROCESS OR CONTROL DEVICE PARAMETERS AS SURROGATE
Monitoring Description:
The loading/unloading of biomass waste (Emission Sources (ES) RECLQ, ES RECSD and ES WASTE) and associated activities (grinder/macerator, etc.) at the Buffalo Bioenergy Anaerobic Digestion Facility (Buffalo Bioenergy) generates fugitive odorous emissions, which when released to the ambient air may be a nuisance and health concern to the surrounding neighborhood. To minimize the release of odorous emissions and ensure compliance with 6NYCRR 211.1, "Air Pollution Prohibited", Building 1-MAIN shall be operated under negative pressure as a total enclosure to capture fugitive emissions in accordance with USEPA Method 204 - Criteria for and Verification of a Permanent or Temporary Total Enclosure. At all times, any loading/unloading of biomass or other odor generating activities conducted outside of Building 1-MAIN, shall be conducted under vacuum or using a vapor control system. An enclosure shall be required, if necessary to control odors. Emissions captured from the building and by the vapor control system shall be exhausted to a properly functioning biofilter or an activated carbon canister(s) as a backup pollution control device. To minimize fugitive

emissions manhole covers shall be sealed when not in use; trucks and other equipment containing any amount of biomass waste shall be covered at all times when exposed to the atmosphere; Facility grounds shall be kept clean and free of exposed biomass waste; and vehicle tires shall be cleaned, if necessary, to prevent tracking of biomass waste offsite.

Buffalo Bioenergy shall submit a Method 204 Operation and Monitoring Plan (O&M Plan) within 60 days of the issuance of the Air State Facility Permit specifying how the facility will be operated to minimize the release of fugitive emissions during biomass transfer, grinding/macerating and other odor generating activities (inside and outside). Natural Draft Openings (NDO) directing air flow into the building/enclosure with a minimum average facial velocity of 200 fpm shall be established and verified for winter and summer modes of operation using a grid system to demonstrate compliance. Buffalo Bioenergy shall operate the facility in accordance with the O&M Plan at all times. All access doors and windows that are not NDOs shall be closed. Facility operators must be made aware of the requirements of the O&M Plan. Each NDO must be identified and the position(s) of the openings that were verified compliant must be clearly marked in the vicinity of the NDO. At least once a week, Building 1-MAIN and the outdoor vapor recovery system shall be inspected to verify compliance with the operating requirements specified in the O&M Plan. These inspections shall be recorded in a logbook and shall include date, time, observer's name, and a brief description of observations, including problems/corrective actions taken. If a problem is encountered that cannot be corrected immediately, action shall be taken to minimize the release of odorous pollutants, including cessation of the receipt of waste, if necessary. The logbook shall be maintained onsite for at least 5 years and available for review upon request by NYSDEC. The Method 204 O&M Plan shall be considered part of the ASF permit.

Parameter Monitored: VELOCITY
Upper Permit Limit: 200 feet per minute
Reference Test Method: USEPA Reference Method 204
Monitoring Frequency: WEEKLY
Averaging Method: ARITHMETIC MEAN
Reporting Requirements: AS REQUIRED - SEE MONITORING DESCRIPTION

Condition 9: **Compliance Demonstration**
Effective between the dates of 04/05/2013 and 04/04/2018

Applicable Federal Requirement:6 NYCRR 212.9 (b)

Item 9.1:
The Compliance Demonstration activity will be performed for:

Emission Unit: 1-ANDIG
Process: 002 Emission Source: FILTR

Regulated Contaminant(s):

CAS No: 007664-41-7	AMMONIA
CAS No: 0NY998-00-0	VOC
CAS No: 007783-06-4	HYDROGEN SULFIDE

Item 9.2:
Compliance Demonstration shall include the following monitoring:

Monitoring Type: MONITORING OF PROCESS OR CONTROL DEVICE PARAMETERS AS SURROGATE
Monitoring Description:
The biofilter shall be operated within the pH range specified below to ensure proper performance and maximum removal efficiency. The pH of the media across the bed shall be measured at least monthly, using an acceptable method. The pH readings and any adjustments made to correct the pH, shall be recorded in a permanently bound logbook or electronically on a secure server or hard drive. Records shall be maintained on site for a minimum of five years and shall be available for NYSDEC review upon request.

Parameter Monitored: PH
Lower Permit Limit: 6.0 pH (STANDARD) units
Upper Permit Limit: 8.0 pH (STANDARD) units
Reference Test Method: AS REQUIRED - SEE MONITORING DESCRIPTION
Monitoring Frequency: MONTHLY
Averaging Method: RANGE-NOT TO FALL OUTSIDE OF STATED RANGE EXCEPT DURING STARTUP/SHUTDOWN
Reporting Requirements: AS REQUIRED - SEE MONITORING DESCRIPTION

Condition 10: Compliance Demonstration
Effective between the dates of 04/05/2013 and 04/04/2018

Applicable Federal Requirement:6 NYCRR 212.9 (b)

Item 10.1:
The Compliance Demonstration activity will be performed for:

Emission Unit: 1-ANDIG
Process: 002 Emission Source: FILTR

Regulated Contaminant(s):

CAS No: 007664-41-7	AMMONIA
CAS No: 0NY998-00-0	VOC
CAS No: 007783-06-4	HYDROGEN SULFIDE

Item 10.2:
Compliance Demonstration shall include the following monitoring:

Monitoring Type: RECORD KEEPING/MAINTENANCE PROCEDURES
Monitoring Description:
Buffalo Bioenergy ADS Facility (Buffalo Bioenergy) operates a biofilter (Emission Source Control (ESC) FILTER) to control emissions

and odors from the liquid receiving tank (ES RECLQ), the solid receiving pit, (ES RECSD) and associated activities (grinding/ macerating, etc.), and the loading of spent biomass into tanker trucks for offsite disposal or land application (ES WASTE). The potential impact of hydrogen sulfide and ammonia emissions on the surrounding community is a concern. Therefore, hydrogen sulfide and ammonia have received an environmental rating of A, which is given to any air contaminant whose discharge results, or may result, in serious adverse effects on receptors or the environment. These effects may be of a health, economic or aesthetic nature or any combination of these.

The biofilter shall be designed to ensure maximum biodegradation and removal of VOCs, ammonia, hydrogen sulfide and other inorganic contaminants. To ensure that the biofilter is operated effectively, the established microorganisms must remain biologically active, verified through acceptable biological monitoring methods. Buffalo Bioenergy shall operate the biofilter with sufficient food source, nutrients and minerals, if necessary, to ensure bio-oxidation and shall monitor pH, moisture content, temperature and differential pressure as specified in this permit. Buffalo Bioenergy shall ensure that the biofilter is properly designed to prevent acid formation, corrosion problems, premature compaction of the media, short-circuiting the media bed, inadequate biological activity, and other problems which can result in sub-standard performance of the biofilter. If necessary, the biofilter shall be enclosed in a building or other structure to minimize microbial stress caused by exposure to extreme (hot/cold) temperature and adverse weather conditions. All operation and maintenance records shall be kept onsite to verify that the biofilter has been operated and maintained in a manner that is conducive to maintaining a healthy environment for the microorganisms to thrive in and control odors. During biofilter acclimation, upsets, and any other odor causing events, the emissions and odors from these emission sources shall be controlled with properly sized activated carbon canisters or other control technology acceptable to NYSDEC. Buffalo Bioenergy may be required to evaluate the performance of the biofilter and compliance with 6NYCRR212.9(b), based on inlet/outlet sampling, upon request by NYSDEC.

Considering the above, an Operation and Maintenance (O&M) Plan shall prepared for the biofilter in accordance with manufacturer's specifications or acceptable procedures and shall be submitted to NYSDEC for review within 60 days of the issuance of this permit. The Final O&M Plan shall be considered part of the Air State Facility Permit.

Monitoring Frequency: AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION
Reporting Requirements: AS REQUIRED - SEE MONITORING DESCRIPTION

Condition 11: Compliance Demonstration
Effective between the dates of 04/05/2013 and 04/04/2018

Applicable Federal Requirement:6 NYCRR 212.9 (b)

Item 11.1:
The Compliance Demonstration activity will be performed for:

Emission Unit: 1-ANDIG
Process: 002 Emission Source: FILTR

Regulated Contaminant(s):
CAS No: 007664-41-7 AMMONIA
CAS No: 0NY998-00-0 VOC
CAS No: 007783-06-4 HYDROGEN SULFIDE

Item 11.2:
Compliance Demonstration shall include the following monitoring:

Monitoring Type: MONITORING OF PROCESS OR CONTROL DEVICE PARAMETERS AS SURROGATE

Monitoring Description:

The differential pressure or pressure drop (delta P) across the bed shall be monitored weekly using a manometer or other acceptable pressure measuring device to ensure the effectiveness of the biofilter and maximum removal efficiency. A differential pressure reading greater than 50% of the design differential pressure indicates the need to inspect and make necessary adjustments to lower delta P or possibly replace the media.

The biofilter shall be operated and maintained so that the differential pressure does not exceed the design differential pressure for the filter bed media determined as follows:
Total Differential Pressure=Dm*UPD=Dm*[8.82E(11)*(%voids)E(-8.6)*UAR E(1.27)]
Where:
Dm (ft) = biofilter media depth (ft)
UPD = Unit Pressure Drop
UAR (ft3/min per ft2)= Q/Am = air flowrate (ft3/min)/bioflter media surface area (ft2)
For Dm=6 feet and UAR = 6 ft3 /min per ft2, the design differential pressures for the following percent voids are:

Percent Voids (%)	Differential Pressure (in. water)
40	0.86
50	0.13
60	0.03

The percent voids or pore volume of the biofilter media may range from 40% to 60% and must be verified prior to start-up. Percent void determinations with data shall be recorded with differential pressure readings in a permanently bound logbook or electronically on a secure server. All records shall be maintained onsite for a minimum of five years and be readily available for NYSDEC review upon request.

Parameter Monitored: PRESSURE DROP
Upper Permit Limit: 0.86 inches of water
Reference Test Method: AS REQUIRED - SEE MONITORING DESCRIPTION
Monitoring Frequency: WEEKLY
Averaging Method: MAXIMUM - NOT TO BE EXCEEDED AT ANY TIME (INSTANTANEOUS/DISCRETE OR GRAB)
Reporting Requirements: AS REQUIRED - SEE MONITORING DESCRIPTION

Condition 12: Compliance Demonstration
Effective between the dates of 04/05/2013 and 04/04/2018

Applicable Federal Requirement:6 NYCRR 212.9 (b)

Item 12.1:
The Compliance Demonstration activity will be performed for:

Emission Unit: 1-ANDIG
Process: 002 Emission Source: FILTR

Regulated Contaminant(s):

CAS No: 007664-41-7	AMMONIA
CAS No: 0NY998-00-0	VOC
CAS No: 007783-06-4	HYDROGEN SULFIDE

Item 12.2:
Compliance Demonstration shall include the following monitoring:

Monitoring Type: MONITORING OF PROCESS OR CONTROL DEVICE PARAMETERS AS SURROGATE
Monitoring Description:
Optimal microbial activity and transfer of contaminants into the biofilter media are dependent on operating temperature. To ensure that the biofilter achieves sufficient biodegradation of VOCs, H2S and NH3 and maximize removal efficiency, the biofilter shall be operated within the temperature range specified below. The temperature across the biofilter bed shall be monitored and recorded continuously using an acceptable method. Sudden changes in biofilter temperature shall be avoided, since this may cause fluctuations in microbial population and decreased removal efficiency. Temperature records shall be maintained onsite for at least five years and shall be available for NYSDEC review upon request.

Parameter Monitored: TEMPERATURE
Lower Permit Limit: 77 degrees Fahrenheit
Upper Permit Limit: 104 degrees Fahrenheit
Reference Test Method: AS REQUIRED - SEE MONITORING DESCRIPTION
Monitoring Frequency: CONTINUOUS
Averaging Method: RANGE-NOT TO FALL OUTSIDE OF STATED RANGE EXCEPT DURING STARTUP/SHUTDOWN
Reporting Requirements: AS REQUIRED - SEE MONITORING DESCRIPTION

Condition 13: Compliance Demonstration

Effective between the dates of 04/05/2013 and 04/04/2018

Applicable Federal Requirement:6 NYCRR 212.9 (b)

Item 13.1:
The Compliance Demonstration activity will be performed for:

Emission Unit: 1-ANDIG
Process: 002 Emission Source: FILTR

Regulated Contaminant(s):
CAS No: 007664-41-7 AMMONIA
CAS No: 0NY998-00-0 VOC
CAS No: 007783-06-4 HYDROGEN SULFIDE

Item 13.2:
Compliance Demonstration shall include the following monitoring:

Monitoring Type: MONITORING OF PROCESS OR CONTROL DEVICE PARAMETERS AS SURROGATE
Monitoring Description:
Bed moisture can affect the removal efficiency of the biofilter. To ensure proper performance of the biofilter and maximum removal efficiency, the biofilter shall be operated within the range of 50%-60% moisture content. The moisture content of the media across the biofilter bed shall be monitored at least monthly using acceptable methods. Monitoring results and associated activities shall be recorded in a permanently bound logbook or electronically, if stored on a secure server. Records shall be maintained onsite for a minimum of five years and be available for NYSDEC review upon request.

Parameter Monitored: MOISTURE CONTENT
Lower Permit Limit: 50 percent
Upper Permit Limit: 60 percent
Reference Test Method: AS REQUIRED - SEE MONITORING DESCRIPTION
Monitoring Frequency: MONTHLY
Averaging Method: RANGE-NOT TO FALL OUTSIDE OF STATED RANGE EXCEPT DURING STARTUP/SHUTDOWN
Reporting Requirements: AS REQUIRED - SEE MONITORING DESCRIPTION

Condition 14: Compliance Demonstration
Effective between the dates of 04/05/2013 and 04/04/2018

Applicable Federal Requirement:6 NYCRR 212.9 (b)

Item 14.1:
The Compliance Demonstration activity will be performed for:

Emission Unit: 1-ANDIG
Process: 002 Emission Source: FILTR

Regulated Contaminant(s):

CAS No: 007783-06-4 HYDROGEN SULFIDE

Item 14.2:
Compliance Demonstration shall include the following monitoring:

Monitoring Type: INTERMITTENT EMISSION TESTING
Monitoring Description:

Buffalo Bioenergy ADS Facility (Buffalo Bioenergy) operates hydrogen sulfide (H2S) generating emission sources as part of Process 001 and Process 002. Hydrogen sulfide emissions from Process 002, generated by the loading/unloading of tanks/trucks (ES RECLQ, ES RECSD, ES WASTE) and associated activities, are controlled through biodegradation in a biofilter with dimensions 20 ft L x 9 ft W x 6 ft D and a release height of 10 ft. To ensure maximum removal efficiency, the biofilter was designed to achieve an empty bed residence time of at least 60 seconds.

The New York State 1-hour ambient air quality standard for hydrogen sulfide is 14 ug/m3 or 0.01 ppm. Based on data from a similar source, it is estimated that the H2S concentration in the inlet to the biofilter is 6.4 ppmv. If operated properly the biofilter should achieve a minimum of 90% removal efficiency, resulting in a concentration of 0.64 ppmv H2S after treatment or 0.00042 g H2S/s. To verify compliance with the NYS AAQS, Buffalo Bioenergy conducted an air quality analysis using AERSCREEN to model H2S emissions from the biofilter as an area source at a release height of 6 feet. Results showed that H2S emissions from the biofilter alone caused property line concentrations to exceed the 1-hour H2S NYS AAQS. A refined analysis of H2S emissions from the biofilter as an area source was conducted using AERMOD which showed 8.05 ug H2S/m3 at the property line at a release height of 10 feet.

To ensure compliance with the 1-hr H2S NYS AAQS, the H2S concentration in the inlet to the biofilter shall not exceed 7.0 ppmv. Buffalo Bioenergy shall conduct daily monitoring of the concentration of H2S in the inlet to the biofilter using a portable analyzer able to measure and record H2S accurately to the satisfaction of the department. Readings taken for H2S shall be recorded and stored electronically as part of the SCADA system on a secure server. The H2S analyzer shall be calibrated, maintained and operated in accordance with manufacturer's specifications/recommendations. The name of the person who conducted the sampling, equipment identification, calibration details and any other pertinent information that can be used to verify compliance with this limit shall be recorded electronically or in a permanently bound logbook.

The biofilter shall be operated and maintained according to the NYSDEC approved Biofilter Operation and Maintenance Plan to ensure a minimum of 90% removal efficiency. If the H2S concentration at the inlet exceeds 7.0 ppmv, the biofilter is not operating/experiencing upsets and/or if hydrogen sulfide odors are detected at or beyond the property line of the facility, Procees 002 emissions shall bypass the

biofilter for treatment by ESC ACARB (activated carbon able to achieve 99% control for H2S). Buffalo Bioenergy shall complete a program of assessment and remediation to correct the potential impact of H2S and use alternative measures to control hydrogen sulfide emissions, if necessary.

All records shall be maintained onsite for a minimum of 5 years and shall be available to NYSDEC upon request.

Upper Permit Limit: 7.0 parts per million (by volume)
Reference Test Method: AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION
Monitoring Frequency: AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION
Averaging Method: 1-HOUR AVERAGE
Reporting Requirements: AS REQUIRED - SEE MONITORING DESCRIPTION

Condition 15: Compliance Demonstration
Effective between the dates of 04/05/2013 and 04/04/2018

Applicable Federal Requirement:6 NYCRR 212.9 (b)

Item 15.1:
The Compliance Demonstration activity will be performed for:

Emission Unit: 1-ANDIG Emission Point: 00001
Process: 001 Emission Source: ENG01

Regulated Contaminant(s):
CAS No: 000050-00-0 FORMALDEHYDE

Item 15.2:
Compliance Demonstration shall include the following monitoring:

Monitoring Type: INTERMITTENT EMISSION TESTING
Monitoring Description:

Buffalo Bioenergy operates a digester-gas fueled, 4 stroke, lean burn spark ignition (SI) internal combustion engine (ICE) to generate electricity for sale to the utility grid. Combustion products contained in the ICE exhaust include formaldehyde, acrolein and acetaldehyde. Both formaldehyde and acrolein are classified as high toxicity air contaminants and have been given an environmental rating of A. An A-rated air contaminant is one whose discharge results, or may result, in serious adverse effects on receptors or the environment. These effects may be of a health, economic or aesthetic nature or any combination of these.

Formaldehyde, acrolein and acetaldehyde may be emitted from the engine at levels that result in offsite ambient air concentrations that exceed the corresponding short-term guideline concentrations (SGCs) and/or annual guideline concentrations (AGCs). Therefore, to protect the public from adverse acute and chronic exposure to these toxic air contaminants, Buffalo Bioenergy shall monitor and control the emission rate of these contaminants, if necessary. Since formaldehyde is the

governing toxic contaminant in the engine emissions based on the AGC, Buffalo Bioenergy shall only be required to monitor formaldehyde emissions.

Since a verified emission factor for formaldehyde does not exist in the literature for this type of emission source, Buffalo Bioenergy shall conduct a stack test to determine the emission rate of formaldehyde from the engine and verify compliance with the emission limit specified below. If the stack test results show an emission rate for formaldehyde that is greater than the limit, Buffalo Bioenergy shall conduct an air quality analysis with AERMOD, using the highest emission rate for formaldehyde determined during the stack test. If AERMOD results show that the ambient impact of formaldehyde exceeds the corresponding AGC and/or SGC, Buffalo Bioenergy shall install the appropriate equipment to control emissions to a level that does not result in offsite ambient air concentrations that exceed the AGC and/or SGC for formaldehyde. A performance test shall be conducted within 180 days of start-up. Prior to installation, Buffalo Bioenergy shall submit an Operation and Maintenance Plan for the control equipment, prepared in accordance with the manufacturer's recommendations/ specifications and accepted procedures. The O& M Plan shall be considered part of this permit.

If the stack test results show compliance with the emission limit for formaldehyde or if the offsite ambient air concentrations of formaldehyde determined via the AERMOD analysis and stack test results is less than the SGC and AGC for formaldehyde, then the installation of control equipment on the engine exhaust is not required. In that case, due to the variability of the waste digested, Buffalo Bioenergy shall conduct stack tests for formaldehyde according to the schedule specified under 40CFR60, Subpart JJJJ (8760 hours of operation or 3 years, whichever is sooner) to verify compliance with the emission limit or that the ambient impact remains acceptable.

In lieu of the stack testing requirements described above, Buffalo Bioenergy may install a catalyst or other acceptable control equipment to remove formaldehyde, acrolein and acetaldehyde from the engine exhaust. A performance test shall be conducted within 180 days of start-up to determine the emission rate of formaldehyde from the engine with control and verify compliance with the limit specified below. An air quality analysis shall be performed as described above.

All stack test protocols shall be submitted to the department at least 45 days prior to a scheduled test. An emissions report shall be submitted within 60 days of conducting the stack test. The annual and short-term offsite ambient air concentrations of formaldehyde and a comparison to the AGC and SGC shall be included with all stack test reports.

All records associated with these requirements shall be maintained onsite for a minimum of 5 years and must be available for NYSDEC

review upon request.

Parameter Monitored: FORMALDEHYDE
Upper Permit Limit: 0.008 pounds per hour
Reference Test Method: Acceptable to NYSDEC for determination of CH2O
Monitoring Frequency: AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION
Averaging Method: 1-HOUR AVERAGE
Reporting Requirements: AS REQUIRED - SEE MONITORING DESCRIPTION

Condition 16: Applicability of facilities subject to Subpart JJJJ
Effective between the dates of 04/05/2013 and 04/04/2018

Applicable Federal Requirement:40CFR 60.4230(a)(4)(i), NSPS Subpart JJJJ

Item 16.1:
This Condition applies to Emission Unit: 1-ANDIG Emission Point: 00001
Process: 001 Emission Source: ENG01

Item 16.2: The provisions of 40 CFR 60 Subpart JJJJ are applicable to manufacturers, owners, and operators of stationary spark ignition (SI) internal combustion engines (ICE) that commence construction after June 12, 2006,and where the stationary SI ICE are manufactured on or after July 1, 2007, for engines with a maximum engine power greater than or equal to 500 HP (except lean burn engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP). For the purposes of this subpart, the date that construction commences is the date the engine is ordered by the owner or operator.

Condition 17: Compliance Demonstration
Effective between the dates of 04/05/2013 and 04/04/2018

Applicable Federal Requirement:40CFR 60.4233(e), NSPS Subpart JJJJ

Item 17.1:
The Compliance Demonstration activity will be performed for:

Emission Unit: 1-ANDIG Emission Point: 00001
Process: 001 Emission Source: ENG01

Regulated Contaminant(s):
CAS No: 000630-08-0 CARBON MONOXIDE

Item 17.2:
Compliance Demonstration shall include the following monitoring:

Monitoring Type: INTERMITTENT EMISSION TESTING
Monitoring Description:
Owners and operators of stationary spark ignition internal combustion engines (SI ICE) with a maximum engine power greater than or equal to

75 KW (100 HP) (except gasoline and rich burn engines that use LPG) must comply with the emission standard listed below for their stationary SI ICE. The specified limit of 4.13 g/dscf CO corresponds to 475 ppmvd CO @ 15% O2.

Buffalo Bioenergy ADS Facility (Buffalo Bioenergy) operates a 1600 kW Caterpillar G3520C SI ICE with maximum engine power of 2233 BHP. The potential to emit (PTE) carbon monoxide (CO) determined using this engine's emission test data for Not to Exceed (NTE) CO at maximum power generation and load is 88.9 tpy. The NTE CO of 4.13 g/bhp-hr is the maximum emission rate that the engine can achieve based on design, with proper maintenance and operation. Considering this, the NTE CO shall be the limit for CO, in lieu of the 5.0 g/bhp-hr standard specified under Subpart JJJJ.

An initial performance test shall be conducted within 1 year of the engine's initial startup, but not before 100 hours of operation. Subsequent performance testing shall be conducted every 8,760 hours or 3 years, whichever comes first, thereafter to demonstrate compliance. A Stack Test Protocol shall be submitted within 45 days of the scheduled performance test for NYSDEC review and approval. In accordance with 60.4245(d), the Stack Test Report shall be submitted to NYSDEC within 60 days of conducting the stack test.

Carbon monoxide content in the engine's exhaust shall be determined quarterly at maximum load using a portable CO analyzer able to measure and record CO accurately to verify compliance with the 4.13 g/bhp-hr CO limit. During each stack test, the CO shall also be measured with the portable CO analyzer to ensure that the analyzer readings concur with stack test results. The CO analyzer readings shall be included in the Stack Test Report. If a quarterly CO reading taken using the analyzer does not show compliance with the 4.13 g/bhp-hr limit, a stack test shall be conducted within 30 days to verify CO emissions. The CO analyzer shall be calibrated, maintained and operated in accordance with manufacturer's specifications. All quarterly CO readings shall be recorded with calibration data and any other pertinent information in a permanently bound logbook or electronically on a secure server.

If a stack test fails to show compliance with the 4.13 g/bhp-hr limit, Buffalo Bioenergy shall evaluate the facility-wide potential to emit CO and applicability of 6NYCRR Part 201-6 based on the noncompliant CO stack test results. The evaluation shall be submitted with the performance test report. If the evaluation shows that the facility-wide PTE CO exceeds the major source threshold of 100 tpy for CO, Buffalo Bioenergy shall submit an application for a permit modification for a federally enforceable emission CAP on CO or a title V permit, whichever is applicable, no later than 30 days after the evaluation is submitted.

All records shall be maintained onsite for a minimum of five years and shall be readily available for NYSDEC review upon request.

Parameter Monitored: CARBON MONOXIDE
Upper Permit Limit: 4.13 grams per brake horsepower-hour
Reference Test Method: USEPA Method 10, 40CFR60, Appendix A
Monitoring Frequency: AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION
Averaging Method: AVERAGING METHOD AS PER REFERENCE TEST METHOD INDICATED
Reporting Requirements: AS REQUIRED - SEE MONITORING DESCRIPTION

Condition 18: Compliance Demonstration
Effective between the dates of 04/05/2013 and 04/04/2018

Applicable Federal Requirement:40CFR 60.4233(e), NSPS Subpart JJJJ

Item 18.1:
The Compliance Demonstration activity will be performed for:

Emission Unit: 1-ANDIG Emission Point: 00001
Process: 001 Emission Source: ENG01

Regulated Contaminant(s):
CAS No: 0NY210-00-0 OXIDES OF NITROGEN

Item 18.2:
Compliance Demonstration shall include the following monitoring:

Monitoring Type: INTERMITTENT EMISSION TESTING
Monitoring Description:

Owners and operators of stationary spark ignition internal combustion engines (SI ICE or engine) with a maximum engine power greater than or equal to 75 KW (100 HP) (except gasoline and rich burn engines that use LPG) must comply with the emission standard listed below for their stationary SI ICE. The specified limit of 0.5 g/dscf NOx as NO2 corresponds to 35 ppmvd NOx (as NO2) @ 15% O2. This limit is the manufacturer's guarantee which was set in lieu of the 2.0 g/bhp-hr standard specified under Subpart JJJJ to ensure compliance with the 1-hr NAAQS for NO2 at the property line as described below.

An initial performance test shall be conducted within 1 year of the engine's initial startup, but not before 100 hours of operation. Subsequent performance testing shall be conducted every 8,760 hours or 3 years, whichever comes first, thereafter to demonstrate compliance. A Stack Test Protocol shall be submitted within 45 days of the scheduled performance test for NYSDEC review and approval. In accordance with 60.4245(d), the Stack Test Report shall be submitted to NYSDEC within 60 days of conducting the stack test.

The National primary 1-hour ambient air quality standard (NAAQS) for oxides of nitrogen (with nitrogen dioxide (NO2) as the indicator) is 100 ppb (188 ug NO2/m3). AERSCREEN modeling results for the engine emissions at 100% load and 0.5 g/bhp-hr show an ambient NO2 concentration of 185 ug/m3 at the property line, which is 98% of the

1-hr NAAQS for NO2. Therefore, in addition to the stack test requirements under 40CFR60, Subpart JJJJ, the emission rate of NO2 from the engine shall be determined quarterly at maximum load using a portable NO2 analyzer able to measure and record NO2 accurately to the satisfaction of the department. During each stack test, the NO2 in the engine exhaust shall also be measured with the portable NO2 analyzer to ensure that the analyzer readings concur with stack test results. The NO2 analyzer readings shall be included in the Stack Test Report. The NO2 analyzer shall be calibrated, maintained and operated in accordance with manufacturer's specifications. All NO2 readings shall be recorded electronically (i.e. SCADA) on a secure server or in a permanently bound logbook with the name of the person who conducted the sampling, equipment identification, calibration details and any other pertinent information that can be used to verify compliance with this limit. If a quarterly NO2 reading taken using the analyzer fails to show compliance with the 0.5 g/bhp-hr limit, then a stack test shall be conducted within 30 days to verify NO2 emissions from the engine operating at 100% load.

If stack testing shows that the NO2 emission rate for the engine is higher than the emission rate for NOx (as NO2) specified below and a refined air quality impact analysis using AERMOD fails to show compliance with the 1-hr standard for nitrogen dioxide at the property line, Buffalo Bioenergy shall complete a program of assessment and remediation to correct the potential impacts. Buffalo Bioenergy shall be required to use alternative measures to control nitrogen dioxide emissions from the engine to less than or equal to 0.5 g/bhp-hr or 35 ppmvd @ 15% O2, if necessary.

All records shall be maintained onsite for a minimum of 5 years and shall be readily available for NYSDEC review upon request.

Parameter Monitored: OXIDES OF NITROGEN
Upper Permit Limit: 0.50 grams per brake horsepower-hour
Reference Test Method: EPA Method 7E, 40CFR60, Appendix A
Monitoring Frequency: AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION
Averaging Method: AVERAGING METHOD AS PER REFERENCE TEST METHOD INDICATED
Reporting Requirements: AS REQUIRED - SEE MONITORING DESCRIPTION

Condition 19: Compliance Demonstration
Effective between the dates of 04/05/2013 and 04/04/2018

Applicable Federal Requirement:40CFR 60.4233(e), NSPS Subpart JJJJ

Item 19.1:
The Compliance Demonstration activity will be performed for:

Emission Unit: 1-ANDIG Emission Point: 00001
Process: 001 Emission Source: ENG01

Item 19.2:

Compliance Demonstration shall include the following monitoring:

Monitoring Type: RECORD KEEPING/MAINTENANCE PROCEDURES
Monitoring Description:

Buffalo Bioenergy Anaerobic Digestion Facility shall burn gas in the SI ICE as specified by the manufacturer with air fuel ratio control. The engine (ES ENG01) and backup utility flare (ES FLARE) shall each be equipped with an hour meter. Operating hours (date and time) for ES ENG01 and ES FLARE, engine power (bhp), generator power (ekW) and fuel consumption for ES ENG01 and ES FLARE shall be recorded. All records shall be maintained onsite for a minimum of five years and shall be available for NYSDEC review upon request.

Monitoring Frequency: AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION
Reporting Requirements: UPON REQUEST BY REGULATORY AGENCY

Condition 20: Compliance Demonstration
Effective between the dates of 04/05/2013 and 04/04/2018

Applicable Federal Requirement:40CFR 60.4233(e), NSPS Subpart JJJJ

Item 20.1:
The Compliance Demonstration activity will be performed for:

Emission Unit: 1-ANDIG Emission Point: 00001
Process: 001 Emission Source: ENG01

Regulated Contaminant(s):
CAS No: 0NY998-00-0 VOC

Item 20.2:
Compliance Demonstration shall include the following monitoring:

Monitoring Type: INTERMITTENT EMISSION TESTING
Monitoring Description:

Owners and operators of stationary spark ignition internal combustion engines (SI ICE) with a maximum engine power greater than or equal to 75 KW (100 HP) (except gasoline and rich burn engines that use LPG) must comply with the emission standard listed below for their stationary SI ICE. The specified limit of 1.0 g/dscf VOC corresponds to 80 ppmvd VOC @ 15% O2.

An initial performance test shall be conducted within 1 year of the engine's initial startup, but not before 100 hours of operation. Subsequent performance testing shall be conducted every 8,760 hours or 3 years, whichever comes first, thereafter to demonstrate compliance. A Stack Test Protocol shall be submitted within 45 days of the scheduled performance test for NYSDEC review and approval. In accordance with 60.4245(d), the Stack Test Report shall be submitted to NYSDEC within 60 days of conducting the stack test.

Parameter Monitored: VOC

Upper Permit Limit: 1.0 grams per brake horsepower-hour
Reference Test Method: 25A or 18, 40CFR60, App A or 320, 40CFR63, App A
Monitoring Frequency: AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION
Averaging Method: AVERAGING METHOD AS PER REFERENCE TEST METHOD INDICATED
Reporting Requirements: AS REQUIRED - SEE MONITORING DESCRIPTION

Condition 21: Length of time a facility is subject to Subpart JJJJ
Effective between the dates of 04/05/2013 and 04/04/2018

Applicable Federal Requirement:40CFR 60.4234, NSPS Subpart JJJJ

Item 21.1:
This Condition applies to Emission Unit: 1-ANDIG Emission Point: 00001
Process: 001 Emission Source: ENG01

Item 21.2: Owners and operators of stationary SI ICE must operate and maintain stationary SI ICE that achieve the emission standards as required in §60.4233 over the entire life of the engine.

Condition 22: Compliance Demonstration
Effective between the dates of 04/05/2013 and 04/04/2018

Applicable Federal Requirement:40CFR 60.4243(b)(2)(ii), NSPS Subpart JJJJ

Item 22.1:
The Compliance Demonstration activity will be performed for:

Emission Unit: 1-ANDIG Emission Point: 00001
Process: 001 Emission Source: ENG01

Item 22.2:
Compliance Demonstration shall include the following monitoring:

Monitoring Type: RECORD KEEPING/MAINTENANCE PROCEDURES
Monitoring Description:
The owner or operator of a stationary SI internal combustion engine greater than 500 HP must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, an initial performance test and subsequent performance testing every 8,760 hours or 3 years, whichever comes first, must be conducted thereafter to demonstrate compliance . All maintenance records, manufacturer's operating and maintenance manual and other information that can be used to verify compliance with this requirement shall be kept onside for a minimum of five years and shall be readily available for NYSDEC review upon request.

Monitoring Frequency: AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION

Reporting Requirements: UPON REQUEST BY REGULATORY AGENCY

Condition 23: Test methods and procedures
Effective between the dates of 04/05/2013 and 04/04/2018

Applicable Federal Requirement:40CFR 60.4244, NSPS Subpart JJJJ

Item 23.1:
This Condition applies to Emission Unit: 1-ANDIG Emission Point: 00001
Process: 001 Emission Source: ENG01

Item 23.2:

Owners and operators of stationary SI ICE who conduct performance tests must follow the procedures in paragraphs (a) through (f) of 40 CFR 60.4244, including :

- Each performance test must be conducted within 10 percent of 100 percent peak (or the highest achievable) load and according to the requirements in §60.8 and under the specific conditions that are specified by Table 2 to this subpart.

- The performance tests shall not be conducted during periods of startup, shutdown, or malfunction, as specified in §60.8(c). If the stationary SI internal combustion engine is non-operational, the facility does not need to startup the engine solely to conduct a performance test, but must conduct the performance test immediately upon startup of the engine.

- The facility conduct three separate test runs for each performance test required in this section, as specified in §60.8(f). Each test run must be conducted within 10 percent of 100 percent peak (or the highest achievable) load and last at least 1 hour.

Condition 24: Compliance Demonstration
Effective between the dates of 04/05/2013 and 04/04/2018

Applicable Federal Requirement:40CFR 60.4245(a), NSPS Subpart JJJJ

Item 24.1:
The Compliance Demonstration activity will be performed for:

Emission Unit: 1-ANDIG Emission Point: 00001
Process: 001 Emission Source: ENG01

Item 24.2:
Compliance Demonstration shall include the following monitoring:

Monitoring Type: RECORD KEEPING/MAINTENANCE PROCEDURES
Monitoring Description:
a) Owners and operators of all stationary SI ICE must keep records of the information in paragraphs (a)(1) through (4) of this section.

(1) All notifications submitted to comply with this subpart and all documentation supporting any notification.

(2) Maintenance conducted on the engine.

(4) Documentation that the engine meets the emission standards.

Monitoring Frequency: AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION
Reporting Requirements: UPON REQUEST BY REGULATORY AGENCY

Condition 25: Compliance Demonstration
Effective between the dates of 04/05/2013 and 04/04/2018

Applicable Federal Requirement:40CFR 60.4245(c), NSPS Subpart JJJJ

Item 25.1:
The Compliance Demonstration activity will be performed for:

Emission Unit: 1-ANDIG	Emission Point: 00001
Process: 001	Emission Source: ENG01

Item 25.2:
Compliance Demonstration shall include the following monitoring:

Monitoring Type: RECORD KEEPING/MAINTENANCE PROCEDURES
Monitoring Description:

(c) Owners and operators of stationary SI ICE greater than or equal to 500 HP that have not been certified by an engine manufacturer to meet the emission standards in § 60.4231 must submit an initial notification as required in § 60.7(a)(1) and § 60.4. The notification must include the information in paragraphs (c)(1) through (5) of this section.

(1) Name and address of the owner or operator;

(2) The address of the affected source;

(3) Engine information including make, model, engine family, serial number, model year, maximum engine power, and engine displacement;

(4) Emission control equipment; and

(5) Fuel used.

Monitoring Frequency: AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION
Reporting Requirements: AS REQUIRED - SEE MONITORING DESCRIPTION

Condition 26: Stationary RICE subject to regulations under 40 CFR Part 60
Effective between the dates of 04/05/2013 and 04/04/2018

Applicable Federal Requirement:40CFR 63.6590(c), Subpart ZZZZ

Item 26.1:
This Condition applies to Emission Unit: 1-ANDIG Emission Point: 00001
Process: 001 Emission Source: ENG01

Item 26.2:
An affected source that meets any of the criteria listed below must meet the requirements of this part by meeting the requirements of 40 CFR part 60 subpart IIII, for compression ignition engines or 40 CFR part 60 subpart JJJJ, for spark ignition engines. No further requirements apply for such engines under this part.

- new or reconstructed stationary RICE located at an area source,
- new or reconstructed 2SLB stationary RICE with a site rating of less than or equal to 500 brake horsepower located at a major source of HAP emissions,
- new or reconstructed 4SLB stationary RICE with a site rating of less than 250 brake horsepower located at a major source of HAP emissions,
- new or reconstructed spark ignition 4 stroke rich burn (4SRB) stationary RICE with a site rating of less than or equal to 500 brake horsepower located at a major source of HAP emissions,
- new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake horsepower located at a major source of HAP emissions which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis,
- new or reconstructed emergency or limited use stationary RICE with a site rating of less than or equal to 500 brake horsepower located at a major source of HAP emissions,
- new or reconstructed compression ignition (CI) stationary RICE with a site rating of less than or equal to 500 brake horsepower located at a major source of HAP emissions.

Condition 27: Compliance Demonstration
Effective between the dates of 04/05/2013 and 04/04/2018

Applicable Federal Requirement:6 NYCRR 212.9 (b)

Item 27.1:
The Compliance Demonstration activity will be performed for:

Emission Unit: 1-ANDIG Emission Point: 00002
Process: 001 Emission Source: FLARE

Regulated Contaminant(s):

CAS No: 007664-41-7	AMMONIA
CAS No: 0NY998-00-0	VOC
CAS No: 007783-06-4	HYDROGEN SULFIDE

Item 27.2:
Compliance Demonstration shall include the following monitoring:

Monitoring Type: MONITORING OF PROCESS OR CONTROL DEVICE PARAMETERS AS SURROGATE
Monitoring Description:
Buffalo Bioenergy ADS Facility shall operate the backup utility flare

identified as Emission Source (ES) FLARE when the engine is not operating to reduce and destroy VOC emissions from the collected digester gas. To ensure complete combustion, maximize the destruction of VOCs and minimize the formation of NOX, the flare shall be operated so that the temperature throughout the flame is within the range specified below. The flare shall be operated in accordance with 40CFR60.18 Paragraphs (c) through (f) of the Federal New Source Performance Standards established for open flares. ES FLARE shall meet, at a minimum, the following conditions:

c)(1) be designed for and operated with no visible emissions as determined by the methods specified in 40 CFR 60.18(f)(1), except for periods not to exceed 5 minutes during any 2 consecutive hours;
(2) Flares shall be operated with a flame present at all times, as determined by the methods specified in 40 CFR 60.18(f)(2);

(3) An owner/operator has the choice of adhering to either the heat content specifications in 40 CFR 60.18(c)(3)(ii) and the maximum tip velocity specifications in 40 CFR 60.18(c)(4), or adhering to the requirements in 40 CFR 60.18(c)(3)(i).

(4) Steam assisted and non assisted flares shall be designed for and operate with an exit velocity, as determined by the methods specified in 40 CFR 60.18(f)(4), less than 18.3 m/sec (60 ft/sec), except as provided in 40 CFR 60.18(c)(4)(ii) and (iii).

(5) Air-assisted flares shall be designed and operated with an exit velocity less than the velocity, Vmax , as determined by the method specified in 40CFR60.18 (f)(6).

(6) Flares used to comply with 40 CFR 60.18(c) shall be steam-assisted, air-assisted or non-assisted.

d) Owners or operators of flares used to comply with the provisions of 40 CFR 60.18 shall monitor these control devices to ensure that they are operated and maintained in conformance with their designs.

e)Flares used to comply with provisions of this subpart shall be operated at all times when emissions may be vented to them.

f)(1) Reference Method 22 shall be used to determine the compliance of flares with the visible emission provisions of this subpart. The observation period is 2 hours and shall be used according to Method 22.

(3) The net heating value of the gas being combusted in a flare shall be calculated using the equation found in 40CFR 60.18(f)(3).

(4) The actual exit velocity of a flare shall be determined by dividing the volumetric flowrate (in units of standard temperature and pressure), as determined by Reference Methods 2, 2A, 2C, or 2D as

appropriate; by the unobstructed (free) cross sectional area of the flare tip.

(5) The maximum permitted velocity, Vmax, for flares complying with 40CFR 60.18(c)(4)(iii) shall be determined by the equation given in 40CFR 60.18(f)(5).

(6) The maximum permitted velocity, Vmax, for air assisted flares shall be determined by the equation given in 40CFR 60.18(f)(6).

The on-going compliance monitoring of the open flare shall include:
a.) Operation and maintenance of the flare to prevent deterioration and promote good combustion in accordance with manufacturer specifications.
b.) Operation, maintenance and calibration of a temperature monitoring device equipped with a continuous recorder to document the flame temperature while the flare is operational.
c.) Operation, maintenance and calibration of a gas flow rate measuring device that shall record the flow at least every 15 minutes while the flare is operational.

Buffalo Bioenergy ADS Facility shall maintain all records related to ES FLARE onsite for a minimum of five years and shall make these records available to NYSDEC upon request.

Manufacturer Name/Model Number: C-deg Biogas Flare System, Type: Low Temp Combustion 6,5
Parameter Monitored: TEMPERATURE
Lower Permit Limit: 1565 degrees Fahrenheit
Upper Permit Limit: 2100 degrees Fahrenheit
Monitoring Frequency: AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION
Averaging Method: RANGE-NOT TO FALL OUTSIDE OF STATED RANGE EXCEPT DURING STARTUP/SHUTDOWN
Reporting Requirements: UPON REQUEST BY REGULATORY AGENCY

STATE ONLY ENFORCEABLE CONDITIONS
****** Facility Level ******

NOTIFICATION OF GENERAL PERMITTEE OBLIGATIONS
This section contains terms and conditions which are not federally enforceable. Permittees may also have other obligations under regulations of general applicability

Item A: **Public Access to Recordkeeping for Facilities With State Facility Permits - 6 NYCRR 201-1.10 (a)**
Where facility owners and/or operators keep records pursuant to compliance with the requirements of 6 NYCRR Subpart 201-5.4, and/or the emission capping requirements of 6 NYCRR Subpart 201-7, the Department will make such records available to the public upon request in accordance with 6 NYCRR Part 616 - Public Access to Records. Facility owners and/or operators must submit the records required to comply with the request within sixty working days of written notification by the Department.

Item B: **General Provisions for State Enforceable Permit Terms and Condition - 6 NYCRR Part 201-5**
Any person who owns and/or operates stationary sources shall operate and maintain all emission units and any required emission control devices in compliance with all applicable Parts of this Chapter and existing laws, and shall operate the facility in accordance with all criteria, emission limits, terms, conditions, and standards in this permit. Failure of such person to properly operate and maintain the effectiveness of such emission units and emission control devices may be sufficient reason for the Department to revoke or deny a permit.

The owner or operator of the permitted facility must maintain all required records on-site for a period of five years and make them available to representatives of the Department upon request. Department representatives must be granted access to any facility regulated by this Subpart, during normal operating hours, for the purpose of determining compliance with this and any other state and federal air pollution control requirements, regulations or law.

STATE ONLY APPLICABLE REQUIREMENTS
The following conditions are state only enforceable.

Condition 28: **Contaminant List**
Effective between the dates of 04/05/2013 and 04/04/2018

Applicable State Requirement:ECL 19-0301

Item 28.1:
Emissions of the following contaminants are subject to contaminant specific requirements in this

permit(emission limits, control requirements or compliance monitoring conditions).

CAS No: 000050-00-0
Name: FORMALDEHYDE

CAS No: 000630-08-0
Name: CARBON MONOXIDE

CAS No: 007446-09-5
Name: SULFUR DIOXIDE

CAS No: 007664-41-7
Name: AMMONIA

CAS No: 007783-06-4
Name: HYDROGEN SULFIDE

CAS No: 0NY210-00-0
Name: OXIDES OF NITROGEN

CAS No: 0NY998-00-0
Name: VOC

Condition 29: Malfunctions and start-up/shutdown activities
Effective between the dates of 04/05/2013 and 04/04/2018

Applicable State Requirement:6 NYCRR 201-1.4

Item 29.1:
(a) The facility owner or operator shall take all necessary and appropriate actions to prevent the emission of air pollutants that result in contravention of any applicable emission standard during periods of start-up, shutdown, or malfunction.

(b) The facility owner or operator shall compile and maintain records of all equipment malfunctions, maintenance, or start-up/shutdown activities when they can be expected to result in an exceedance of any applicable emission standard, and shall submit a report of such activities to the department when requested to do so, or when so required by a condition of a permit issued for the corresponding air contamination source. Such reports shall state whether any violations occurred and, if so, whether they were unavoidable, include the time, frequency and duration of the maintenance and/or start-up/shutdown activities, and an estimate of the emission rates of any air contaminants released. Such records shall be maintained for a period of at least five years and made available for review to department representatives upon request. Facility owners or operators subject to continuous stack monitoring and quarterly reporting requirements need not submit additional reports for equipment maintenance or start-up/shutdown activities for the facility to the department.

(c) In the event that emissions of air contaminants in excess of any emission standard in this Subchapter occur due to a malfunction, the facility owner or operator shall compile and maintain records of the malfunction and notify the department as soon as possible during normal working hours, but not later than two working days after becoming aware that the malfunction occurred. When requested by the department, the facility owner or operator shall submit a written report

to the department describing the malfunction, the corrective action taken, identification of air contaminants, and an estimate of the emission rates.

(d) The department may also require the owner or operator to include, in reports described under Subdivisions (b) and (c) of this Section, an estimate of the maximum ground level concentration of each air contaminant emitted and the effect of such emissions.

(e) A violation of any applicable emission standard resulting from start-up, shutdown, or malfunction conditions at a permitted or registered facility may not be subject to an enforcement action by the department and/or penalty if the department determines, in its sole discretion, that such a violation was unavoidable. The actions and recordkeeping and reporting requirements listed above must be adhered to in such circumstances.

Condition 30: Emission Unit Definition
Effective between the dates of 04/05/2013 and 04/04/2018

Applicable State Requirement:6 NYCRR Subpart 201-5

Item 30.1(From Mod 0):
The facility is authorized to perform regulated processes under this permit for:
Emission Unit: 1-ANDIG
Emission Unit Description:
This emission unit consists of a 230,000 gallon tank for the equalization of liquid and solid biomass prior to anaerobic digestion; a 750,000 gallon anaerobic digestion tank for the production of biogas; a desulfurization system to treat H2S in biogas prior to combustion; a Caterpillar G3520C spark ignition (SI) internal combustion engine (ICE) where biogas collected from the digester and equalization tanks is combusted to produce electricity for on-site use and for the grid; a backup utility flare with electronic ignition used to combust biogas during IC engine downtime; a 40 cu yd biofilter used to treat the exhaust from the odor control areas, including biomass receiving, grinding operations and digestate transfer; a 12,000 gallon liquid biomass receiving tank; the Solids Receiving Pit (a 30 cu yd live bottom hopper for receiving solid biomass, a solid biomass grinder and a liquid/solid grinder/macerator); an effluent transfer station where digestate is loaded into tanker trucks for delivery to off-site storage tanks or for land application; and activated carbon canister(s) used to control odor in lieu of the biofilter, when necessary.

Building(s): 1MAIN

Condition 31: Renewal deadlines for state facility permits
Effective between the dates of 04/05/2013 and 04/04/2018

Applicable State Requirement:6 NYCRR 201-5.2 (c)

Item 31.1:
The owner or operator of a facility having an issued state facility permit shall submit a complete application at least 180 days, but not more than eighteen months, prior to the date of permit

expiration for permit renewal purposes.

Condition 32: Compliance Demonstration
Effective between the dates of 04/05/2013 and 04/04/2018

Applicable State Requirement:6 NYCRR 201-5.3 (c)

Item 32.1:
The Compliance Demonstration activity will be performed for the Facility.

Item 32.2:
Compliance Demonstration shall include the following monitoring:

Monitoring Type: RECORD KEEPING/MAINTENANCE PROCEDURES
Monitoring Description:

Any reports or submissions required by this permit shall be submitted to the Regional Air Pollution Control Engineer (RAPCE) at the following address:

Division of Air Resources
NYS Dept. of Environmental Conservation
Region 9
270 Michigan Ave.
Buffalo, NY 14203

Reporting Requirements: AS REQUIRED - SEE MONITORING DESCRIPTION

Condition 33: Visible Emissions Limited
Effective between the dates of 04/05/2013 and 04/04/2018

Applicable State Requirement:6 NYCRR 211.2

Item 33.1:
Except as permitted by a specific part of this Subchapter and for open fires for which a restricted burning permit has been issued, no person shall cause or allow any air contamination source to emit any material having an opacity equal to or greater than 20 percent (six minute average) except for one continuous six-minute period per hour of not more than 57 percent opacity.

****** Emission Unit Level ******

Condition 34: Emission Point Definition By Emission Unit
Effective between the dates of 04/05/2013 and 04/04/2018

Applicable State Requirement:6 NYCRR Subpart 201-5

Item 34.1(From Mod 0):
The following emission points are included in this permit for the cited Emission Unit:

Emission Unit: 1-ANDIG

Emission Point: 00001
Height (ft.): 24 Diameter (in.): 12
NYTMN (km.): 4750.343 NYTME (km.): 195.164

Emission Point: 00002
Height (ft.): 26 Diameter (in.): 44
NYTMN (km.): 4750.343 NYTME (km.): 195.164

Condition 35: Process Definition By Emission Unit
Effective between the dates of 04/05/2013 and 04/04/2018

Applicable State Requirement:6 NYCRR Subpart 201-5

Item 35.1(From Mod 0):
This permit authorizes the following regulated processes for the cited Emission Unit:

Emission Unit: 1-ANDIG
Process: 001 Source Classification Code: 2-03-007-07
Process Description:
Liquid and solid biomass are processed in a 230,000 gallon equalization tank and a 750,000 gallon complete mix anaerobic digestion tank. Biogas is collected from the tanks and conveyed to a low energy fuel Caterpillar G3520C spark ignition internal combustion engine (maximum engine power @ 2233 bhp and maximum generator power @ 1600 ekW) where electricity is produced for onsite and offsite use. The digester is equipped with a desulfurization membrane that uses microbial activity to control hydrogen sulfide emissions to protect the engine. Supplemental H2S control equipment is available onsite to treat biogas when needed to control SO2 emissions. A backup flare is present to control digester emissions for periods of scheduled maintenance on the engine and for any unplanned outages of the engine.

Emission Source/Control: ENG01 - Combustion
Design Capacity: 1,600 kilowatts

Emission Source/Control: DSULF - Control
Control Type: IRON SPONGE

Emission Source/Control: FLARE - Control
Control Type: FLARING

Emission Source/Control: DGTNK - Process
Design Capacity: 750,000 gallons

Emission Source/Control: EQTNK - Process
Design Capacity: 230,000 gallons

Item 35.2(From Mod 0):
This permit authorizes the following regulated processes for the cited Emission Unit:

Emission Unit: 1-ANDIG

Process: 002 Source Classification Code: 5-04-107-60
Process Description:

This process is the loading of liquid and solid biomass into a 12,000 gallon precast concrete tank and a 30 cubic yard capacity live bottom hopper, respectively and associated activities. This process also includes the loading of digestate into tanker trucks for offsite disposal or land application. Volatile organic compounds, inorganics and odorous emissions from this process are collected and ducted to a biofilter for control. There is a bypass to activated carbon for control of VOCs, inorganics and odors during periods when the biofilter is acclimating, undergoing maintenance and/or is not functioning properly.

Emission Source/Control: ACARB - Control
Control Type: ACTIVATED CARBON ADSORPTION

Emission Source/Control: FILTR - Control
Control Type: BIOLOGICAL OXIDATION

Emission Source/Control: RECLQ - Process
Design Capacity: 12,000 gallons

Emission Source/Control: RECSD - Process
Design Capacity: 30 cubic yards

Emission Source/Control: WASTE - Process