



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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Lewiston Auburn Water
Pollution Control Authority
Androscoggin County
Lewiston, Maine
A-1054-71-A-N

Departmental
Findings of Fact and Order
Air Emission License

After review of the air emissions license application, staff investigation reports and other documents in the applicant's file in the Bureau of Air Quality, pursuant to 38 M.R.S.A., §344 and §590, the Department finds the following facts:

I. REGISTRATION

A. Introduction

The Lewiston Auburn Water Pollution Control Authority (LAWPCA) submitted an air emission application for an anaerobic digester and cogeneration system to be located at the wastewater treatment facility. The system, used to produce heat and power from municipal waste sludge, includes two anaerobic digesters, two generators, two boilers, and a waste gas flare.

The wastewater facility is located on 535 Lincoln Street in Lewiston.

B. Emission Equipment

The following equipment is addressed in this air emission license:

Fuel Burning Equipment

<u>Equipment</u>	<u>Maximum Capacity (MMBtu/hr)</u>	<u>Maximum Firing Rate *</u>	<u>Fuel Type, % sulfur</u>	<u>Stack #</u>
Cogeneration Unit #1 (230 kW)	2.23	4055 scf/hr	Biogas	1
		2186 scf/hr	Nat'l Gas Backup	
Cogeneration Unit #2 (230 kW)	2.23	4055 scf/hr	Biogas	1
		2186 scf/hr	Nat'l Gas Backup	
Boiler 1	2.2	3974 scf/hr	Biogas	2
		2157 scf/hr	Nat'l Gas Backup	
Boiler 2	2.2	3974 scf/hr	Biogas	2
		2157 scf/hr	Nat'l Gas Backup	
Emergency Flare	5.5	10,000 scf/hr	Biogas	N/A

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- * Calculations were based on heating values of 550 Btu/standard cubic feet (scf) for biogas and 1020 Btu/scf for natural gas.

C. Application Classification

A new source is considered a major source based on whether or not expected emissions exceed the "Significant Emission Levels" as defined in the Department's regulations. The emissions for the new source are determined by the maximum future license allowed emissions, as follows:

<u>Pollutant</u>	<u>Max. Future License (TPY)</u>	<u>Sig. Level</u>
PM	1.14	100
PM ₁₀	1.14	100
SO ₂	0.25	100
NO _x	13.97	100
CO	55.56	100
VOC	2.87	50

The Department has determined LAWPCA is a minor source and the application has been processed through *Major and Minor Source Air Emission License Regulations*, 06-096 CMR 115 (as amended).

II. **BEST PRACTICAL TREATMENT (BPT)**

A. Introduction

In order to receive a license the applicant must control emissions from each unit to a level considered by the Department to represent Best Practical Treatment (BPT), as defined in *Definitions Regulation*, 06-096 CMR 100 (as amended). Separate control requirement categories exist for new and existing equipment as well as for those sources located in designated non-attainment areas.

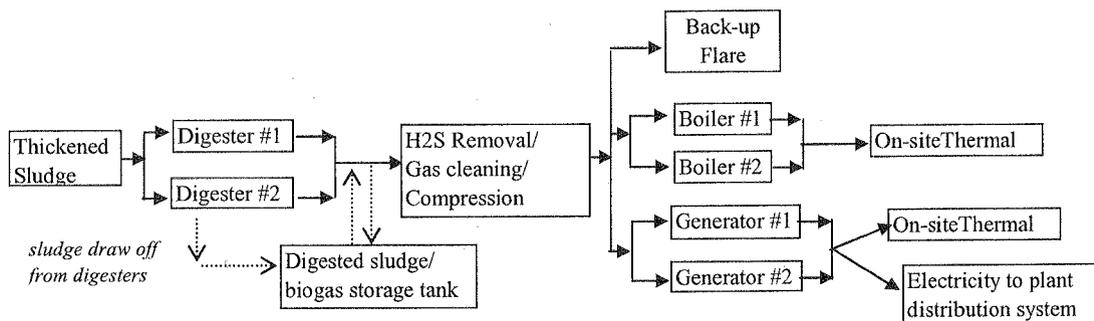
BPT for new sources and modifications requires a demonstration that emissions are receiving Best Available Control Technology (BACT), as defined in *Definitions Regulation*, 06-096 CMR 100 (as amended). BACT is a top-down approach to selecting air emission controls considering economic, environmental and energy impacts.

Process Description

LAWPCA is proposing an anaerobic digester cogeneration system with two digester units to produce biogas from municipal waste sludge. The biogas will provide fuel for two generators which will produce thermal energy for on-site use and electricity for onsite use or for the grid. The system will also include two biogas fired boilers since the amount of heat reclaimed from the cogeneration system may not be enough to meet the heat needs of the digester during colder weather. The generators and boilers will be equipped with natural gas as back-up fuel.

The excess digester gas produced during downtime of the generators and boilers will be flared. There will not be a circumstance when natural gas would be combusted in the generators and boilers with biogas being diverted to the flare.

Below is a simplified diagram of LAWPCA's proposed process:



B. Cogeneration Units

The two proposed generators are each 230 kW reciprocating engines (2.23 MMBtu/hr, 308 hp) and will fire biogas produced from the anaerobic digesters with natural gas as back-up fuel. The cogeneration units are considered combined heat and power generators (producing both thermal heat for the facility and electrical energy). The generators will vent into a common stack, at least 17 feet in height.

NSPS Requirements

The generators are subject to the New Source Performance Standards (NSPS) 40 CFR Part 60, Subpart JJJJ, *Standards of Performance for Stationary Spark Ignition Internal Combustion Engines*. The applicability for these engines is under the category of engines manufactured on or after July 1, 2008 with a maximum engine power less than 500 hp manufactured (§60.4230(a)(4)(iii)).

Owners of these units are required to purchase an engine certified to the standards of Subpart JJJJ, Table 1 (manufacturer certification is acceptable).

NESHAP Requirements

The generators are also subject to 40 CFR Part 63, Subpart ZZZZ, *National Emission Standards for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines*. The generators are considered new stationary reciprocating internal combustion engines at an area HAP source (construction commenced on or after June 12, 2006); however, since the units are subject to 40 CFR Part 60, Subpart JJJJ there are no further requirements under 40 CFR Part 60, Subpart ZZZZ (§63.6590(c)(1)).

BACT

LAWPCA submitted a BACT analysis as part of the license application. The summary of the BACT analysis for the generators is the following:

PM/PM₁₀– The options for controlling particulate matter from the generators include add-on controls and good operating practices. Add on-controls were not considered. The anaerobic digester system includes gas cleaning using a particulate filter to remove particulate matter from the biogas prior to combustion. The generators have their own fuel and air filters which further remove particulates and improve engine performance and reliability. These filters, the inherent combustion efficiencies of a new unit, and good operating practices are BACT, with the PM emission limit for the generators based on emission factors obtained from the San Diego Air Pollution Control District (27.6 lb/MMft³ for biogas and 10.19 lb/MMft³ for natural gas).

The BACT emission limits for PM/PM₁₀ from each generator is 0.11 lb/hr for biogas and 0.02 lb/hr for natural gas.

SO₂ – Sulfur dioxide emissions result from the combustion oxidation of hydrogen sulfide (H₂S) and possibly other reduced sulfur compounds formed through the reduction of sulfates by anaerobic bacteria within the digester. Sulfates occur naturally in wastewater through the decomposition of urine and protein in the influent sludge. H₂S removal systems include chemical treatment such as the addition of ferric chloride to the digesters or flow-through systems that utilize iron-oxide impregnated wood chip media (iron sponge system). The iron sponge technology is considered a proven technology in the wastewater industry. When biogas comes into contact with iron sponge media, a chemical reaction with the oxides effectively removes the hydrogen sulfide from the biogas. After the biogas passes through the media, a stable iron sulfide compound remains on the wood chips. The iron sponge media is housed

in large corrosion resistant vessels (stainless steel or reinforced fiberglass) and disposed of as a non-hazardous waste.

The use of the iron sponge biogas treatment system is BACT, with the SO₂ emission limit for the generators based on data provided by the engine manufacturer.

The BACT emission limits for SO₂ from each generator is 0.02 lb/hr for biogas and 0.0021 lb/hr for natural gas.

NO_x – LAWPCA evaluated various options for controlling nitrogen oxides from the generators. NO_x emissions from internal combustion engines are primarily reduced either by combustion controls such as design modifications to improve air and fuel mixing, Ignition Timing Retard, lean burn and air to fuel adjustment, exhaust gas recirculation, water or steam injection, and combustion of biogas fuel; or by using control systems such as selective catalytic reduction (SCR) and selective non-catalytic reduction (SNCR).

SCR is an add-on control which uses urea or ammonia injection along with a catalyst to react with the NO_x in the flue gas to form water and nitrogen. SCR catalysts have improved significantly and are in use in some diesel fueled engines. However, SCR technologies are not generally used for biogas-fueled engines primarily due to the poisoning of the catalyst by the various compounds found in digester or landfill gas. In several California Air Districts, use of SCR in landfill gas fueled engines is experimental and there are no known stable, long-term operation of SCR on similar waste gas systems in practice. Therefore, SCR was not considered technologically feasible for LAWPCA.

SNCR is an add-on control which also uses ammonia or urea injection, but without a catalyst. The reaction requires the injection point at a specific temperature (1600-2100°F), which is above the expected exhaust temperature for the LAWPCA generators, therefore SNCR was not considered feasible for the facility.

Exhaust gas recirculation, where exhaust gas is recirculated back to the combustion chamber, reduces NO_x formation by lowering peak temperature and lowering the oxygen concentration slightly. Although exhaust gas recirculation has been applied to internal combustion engines, the available data shows a reduction of fuel efficiency and only marginal NO_x reduction. At this time, no manufacturers are offering exhaust gas recirculation on gas-fired engines.

Firing biogas fuel can be considered a part of a NO_x emissions reduction control strategy. Biogas has large amounts of CO₂, causing peak engine temperatures to be reduced, and thereby minimizing NO_x formation. This is a viable method to reducing NO_x from the generators.

Lean burn combustion engines are designed to be operated at high excess air levels resulting in lower combustion temperatures and therefore lower NO_x emissions. Lean burn combustion simultaneously minimizes emissions of NO_x along with PM, CO, and VOC. Lean burn technology for digester gas-fired internal combustion engines is widely utilized. LAWPCA is proposing to use a lean burn technology generator.

Ignition timing retard delays the ignition timing to minimize peak combustion temperature. NO_x formation can be greatly reduced, but CO and PM emissions potentially increase, along with a decrease in engine performance and operational stability. Most engine manufacturers use ignition timing retard to some degree, including the engines proposed to be utilized by LAWPCA.

Proper operation and good combustion and maintenance practices minimize emissions for all pollutants including NO_x. LAWPCA will maintain the anaerobic digesters and the generators in accordance with the manufacturers' written instruction for proper operation and maintenance.

The use of biogas fuel, lean burn combustion technology, ignition timing retard tuning, proper operation, and good combustion and maintenance practices are BACT for the generators to minimize NO_x emissions, with the NO_x emission limit for the generators based on data provided by the engine manufacturer.

The BACT emission limit for NO_x from each generator is 0.93 lb/hr for biogas and 1.36lb/hr for natural gas. This meets the 2.0 g/hp-hr emissions requirement found in Table 1 of 40 CFR Part 60, Subpart JJJJ.

CO – The options for controlling carbon monoxide from generators include good combustion control and an add-on oxidation catalyst. Add on-controls were not considered. The inherent combustion efficiencies of a new lean burn unit and good operating practices were proposed as BACT, with the CO emission limit for the generators based on data provided by the engine manufacturer.

The BACT emission limit for CO from each generator is 1.88 lb/hr for biogas and 2.72 lb/hr for natural gas. This meets the 5.0 g/hp-hr emissions requirement found in Table 1 of 40 CFR Part 60, Subpart JJJJ.

VOC – The options for controlling volatile organic compounds from generators include good combustion control and an add-on oxidation catalyst. Add on-controls were not considered. The inherent combustion efficiencies of a new lean burn unit and good operating practices were proposed as BACT, with the VOC emission limit for the generators based on emission factors obtained from the San Diego Air Pollution Control District (77.76 lb/MMft³ for biogas and 120.36 lb/MMft³ for natural gas).

The BACT emission limit for VOC from each generator is 0.32 lb/hr for biogas and 0.26 lb/hr for natural gas. This meets the 1.0 g/hp-hr emissions requirement found in Table 1 of 40 CFR Part 60, Subpart JJJJ.

Opacity – Visible emissions from the cogeneration units' shared stack shall not exceed 10% opacity on a 6 minute block average, except for no more than two (2) six (6) minute block averages in a 3 hour period.

Greenhouse Gases – Current and developing EPA and US Department of Energy guidance includes the use of biogas or biomass as alternative fuels to be considered for facilities with power generation and combustion. Overall methane emissions from LAWPCA will be reduced by the operation of the digester and the firing of biogas in the cogeneration unit. The operation of the anaerobic digester system and cogeneration can be considered part of LAWPCA's greenhouse gas emissions control strategy.

Periodic Monitoring

LAWPCA shall keep records of the hours of operation of the cogeneration units on a 12 month rolling total.

To monitor the performance of the iron sponge media, LAWPCA shall test a grab sample of biogas at the outlet of the iron sponge treatment unit for H₂S every month (Dräger Tube). The media in the iron sponge technology shall be replaced when the test results show breakthrough of H₂S (a detectable amount). Records shall be maintained of the grab sample results and dates of when the media is replaced.

Compliance with the emission requirements in 40 CFR Part 60, Subpart JJJJ shall be demonstrated by certification from the manufacturer or an initial performance test and subsequent tests every 8760 hours or 3 years, whichever comes first, if a manufacturer certification is unavailable.

C. Boilers

The two proposed boilers are each 2.2 MMBtu/hr and will fire biogas produced from the anaerobic digesters with natural gas as back-up fuel. It is anticipated that the biogas will primarily be used in the cogeneration units and the boilers will be operated when additional biogas is available or if the cogeneration units are down. The boilers have been sized to meet the heating demands of the digesters.

The boilers are of a modern design which optimizes fuel use efficiency and minimizes emissions through combustion optimization. Low NO_x burners are available at a greater cost, as are possible other controls, however these are not considered justifiable due to the small size and minimal emissions from the boilers. Gas combustion inherently has low SO₂ and PM emissions. BACT is proposed to be the use of new high efficiency biogas-fired boilers with natural gas firing capabilities.

The BACT emission limits for each of the boilers were based on the following emission factors provided by the San Diego Air Pollution Control District (<http://www.sdapcd.org/toxics/emissions/combgas/combgas.html>):

- PM/PM₁₀ – 4.47 lb/MMft³ for biogas (0.02 lb/hr) and 7.60 lb/MMft³ for natural gas (0.02 lb/hr).
- SO₂ – 2.0 lb/MMft³ for biogas (0.01 lb/hr) and 0.6 lb/MMft³ for natural gas (0.0013 lb/hr).
- NO_x – 58.82 lb/MMft³ for biogas (0.24 lb/hr) and 100.0 lb/MMft³ for natural gas (0.22 lb/hr).
- CO – 49.41 lb/MMft³ for biogas (0.20 lb/hr) and 84.0 lb/MMft³ for natural gas (0.18 lb/hr).
- VOC – 3.24 lb/MMft³ for biogas (0.01 lb/hr) and 5.50 lb/MMft³ for natural gas (0.01 lb/hr).
- Opacity – Visible emissions from the combined stack for the boilers shall not exceed an opacity of 10% on a 6 minute block average basis, except for no more than one (1) six (6) minute block average in a 3 hour period.

D. Digester Flare

The digester flare is rated at 5.5 MMBtu/hr and will be utilized when biogas cannot be combusted in the engines and/or boilers due to equipment downtime, malfunction, or other scenarios in which the biogas would otherwise be vented. By flaring the biogas, the resulting emissions are safer and more environmentally friendly than if the biogas vented uncontrolled.

BACT is proposed to be the use of the flare for control of digester gases when the gases are not able to be fired in the cogeneration units and boilers.

The BACT emission limits for the flare were based on the following emission factors provided by the San Diego Air Pollution Control District (<http://www.sdapcd.org/toxics/emissions/combgas/combgas.html>):

PM/PM₁₀ – 12.0 lb/MMft³ (0.12 lb/hr)

SO₂ – 2.0 lb/MMft³ (0.02 lb/hr)

NO_x – 48.0 lb/MMft³ (0.48 lb/hr)

CO – 1.8 lb/MMft³ (0.02 lb/hr)

VOC – 12.10 lb/MMft³ (0.12 lb/hr)

Opacity – Visible emissions from the flare shall not exceed an opacity of 10% on a 6 minute block average basis, except for no more than one (1) six (6) minute block average in a 3 hour period.

Periodic Monitoring

LAWPCA shall maintain a log documenting flare operation.

E. Fugitive Emissions

Visible emissions from a fugitive emission source (including stockpiles and roadways) shall not exceed an opacity of 20%, except for no more than five (5) minutes in any 1-hour period. Compliance shall be determined by an aggregate of the individual fifteen (15)-second opacity observations which exceed 20% in any one (1) hour.

F. General Process Emissions

Visible emissions from any general process source shall not exceed an opacity of 20% on a six (6) minute block average basis, except for no more than one (1) six (6) minute block average in a 1-hour period.

G. Annual Emissions

LAWPCA shall be restricted to the following annual emissions, calculated with the cogeneration units and boilers operating 8760 hrs/year, based on a 12 month rolling total:

Total Licensed Annual Emissions for the Facility *
Tons/year
(used to calculate the annual license fee)

	PM	PM ₁₀	SO ₂	NO _x	CO	VOC
Cogeneration Units	0.98	0.98	0.18	11.91	23.83	2.76
Boilers	0.16	0.16	0.07	2.06	1.73	0.11
Total TPY	1.14	1.14	0.25	13.97	55.56	2.87

*Note: Tons per year calculations were based on a worst case scenario, as follows:

- generators and boilers firing 8760 hr/yr (the flare is not included since it will be operated when the generators and boilers are not functioning; the flare has the same or lower emissions as the other units),
- PM, SO₂, and VOC emissions were based on biogas firing and NO_x and CO were based on natural gas firing for the generators.
- PM, SO₂, NO_x, CO, and VOC emissions were all based on biogas firing for the boilers.

III. AMBIENT AIR QUALITY ANALYSIS

According to 06-096 CMR 115, the level of air quality analyses required for a minor new source shall be determined on a case-by case basis. Based on the information available in the file, and the similarity to existing sources, Maine Ambient Air Quality Standards (MAAQS) will not be violated by this source.

ORDER

Based on the above Findings and subject to conditions listed below, the Department concludes that the emissions from this source:

- will receive Best Practical Treatment,
- will not violate applicable emission standards,
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants Air Emission License A-1054-71-A-N subject to the following conditions.

Severability. The invalidity or unenforceability of any provision, or part thereof, of this License shall not affect the remainder of the provision or any other provisions. This License shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.

STANDARD CONDITIONS

- (1) Employees and authorized representatives of the Department shall be allowed access to the licensee's premises during business hours, or any time during which any emissions units are in operation, and at such other times as the Department deems necessary for the purpose of performing tests, collecting samples, conducting inspections, or examining and copying records relating to emissions (38 M.R.S.A. §347-C).
- (2) The licensee shall acquire a new or amended air emission license prior to commencing construction of a modification, unless specifically provided for in Chapter 115. [06-096 CMR 115]
- (3) Approval to construct shall become invalid if the source has not commenced construction within eighteen (18) months after receipt of such approval or if construction is discontinued for a period of eighteen (18) months or more. The Department may extend this time period upon a satisfactory showing that an extension is justified, but may condition such extension upon a review of either the control technology analysis or the ambient air quality standards analysis, or both. [06-096 CMR 115]
- (4) The licensee shall establish and maintain a continuing program of best management practices for suppression of fugitive particulate matter during any period of construction, reconstruction, or operation which may result in fugitive dust, and shall submit a description of the program to the Department upon request. [06-096 CMR 115]
- (5) The licensee shall pay the annual air emission license fee to the Department, calculated pursuant to Title 38 M.R.S.A. §353. [06-096 CMR 115]
- (6) The license does not convey any property rights of any sort, or any exclusive privilege. [06-096 CMR 115]
- (7) The licensee shall maintain and operate all emission units and air pollution systems required by the air emission license in a manner consistent with good air pollution control practice for minimizing emissions. [06-096 CMR 115]
- (8) The licensee shall maintain sufficient records to accurately document compliance with emission standards and license conditions and shall maintain such records

- for a minimum of six (6) years. The records shall be submitted to the Department upon written request. [06-096 CMR 115]
- (9) The licensee shall comply with all terms and conditions of the air emission license. The filing of an appeal by the licensee, the notification of planned changes or anticipated noncompliance by the licensee, or the filing of an application by the licensee for a renewal of a license or amendment shall not stay any condition of the license. [06-096 CMR 115]
- (10) The licensee may not use as a defense in an enforcement action that the disruption, cessation, or reduction of licensed operations would have been necessary in order to maintain compliance with the conditions of the air emission license. [06-096 CMR 115]
- (11) In accordance with the Department's air emission compliance test protocol and 40 CFR Part 60 or other method approved or required by the Department, the licensee shall:
- A. perform stack testing to demonstrate compliance with the applicable emission standards under circumstances representative of the facility's normal process and operating conditions:
 - 1. within sixty (60) calendar days of receipt of a notification to test from the Department or EPA, if visible emissions, equipment operating parameters, staff inspection, air monitoring or other cause indicate to the Department that equipment may be operating out of compliance with emission standards or license conditions; or
 - 2. pursuant to any other requirement of this license to perform stack testing.
 - B. install or make provisions to install test ports that meet the criteria of 40 CFR Part 60, Appendix A, and test platforms, if necessary, and other accommodations necessary to allow emission testing; and
 - C. submit a written report to the Department within thirty (30) days from date of test completion.
- [06-096 CMR 115]
- (12) If the results of a stack test performed under circumstances representative of the facility's normal process and operating conditions indicate emissions in excess of the applicable standards, then:
- A. within thirty (30) days following receipt of such test results, the licensee shall re-test the non-complying emission source under circumstances representative of the facility's normal process and operating conditions and in accordance with the Department's air emission compliance test protocol and 40 CFR Part 60 or other method approved or required by the Department; and
 - B. the days of violation shall be presumed to include the date of stack test and each and every day of operation thereafter until compliance is demonstrated under normal and representative process and operating conditions, except to

the extent that the facility can prove to the satisfaction of the Department that there were intervening days during which no violation occurred or that the violation was not continuing in nature; and

- C. the licensee may, upon the approval of the Department following the successful demonstration of compliance at alternative load conditions, operate under such alternative load conditions on an interim basis prior to a demonstration of compliance under normal and representative process and operating conditions.

[06-096 CMR 115]

- (13) Notwithstanding any other provisions in the State Implementation Plan approved by the EPA or Section 114(a) of the CAA, any credible evidence may be used for the purpose of establishing whether a person has violated or is in violation of any statute, regulation, or Part 70 license requirement. [06-096 CMR 115]
- (14) The licensee shall maintain records of malfunctions, failures, downtime, and any other similar change in operation of air pollution control systems or the emissions unit itself that would affect emission and that is not consistent with the terms and conditions of the air emission license. The licensee shall notify the Department within two (2) days or the next state working day, whichever is later, of such occasions where such changes result in an increase of emissions. The licensee shall report all excess emissions in the units of the applicable emission limitation. [06-096 CMR 115]
- (15) Upon written request from the Department, the licensee shall establish and maintain such records, make such reports, install, use and maintain such monitoring equipment, sample such emissions (in accordance with such methods, at such locations, at such intervals, and in such a manner as the Department shall prescribe), and provide other information as the Department may reasonably require to determine the licensee's compliance status. [06-096 CMR 115]

SPECIFIC CONDITIONS

(16) **Cogeneration Units**

- A. The two cogeneration units (2.23 MMBtu/hr each) shall fire biogas or natural gas. [06-096 CMR 115, BPT]
- B. Emissions from each of the cogeneration units shall not exceed the following [06-096 CMR 115, BPT]:

Fuel	PM (lb/hr)	PM ₁₀ (lb/hr)	SO ₂ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Biogas	0.11	0.11	0.02	0.93	1.88	0.32
Nat'l Gas	0.02	0.02	0.002	1.36	2.72	0.26

- C. Visible emissions from the combined stack for the cogeneration units shall not exceed 10% opacity on a six (6) minute block average, except for no more than two (2) six (6) minute block averages in a continuous 3-hour period. [06-096 CMR 101]
- D. The combined stack for the cogeneration units shall be a minimum of 17 feet in height. [06-096 CMR 115, BACT]
- E. LAWPCA shall keep records of the hours of operation of the cogeneration units on a monthly and 12 month rolling total basis. [06-096 CMR 115, BACT]
- F. LAWPCA shall test a grab sample of biogas at the outlet of the iron sponge treatment unit for H₂S every month (Draeger Tube). The media in the iron sponge technology shall be replaced when the test results show breakthrough of H₂S (a detectable amount). Records shall be maintained of the grab sample results and dates of when the media is replaced. [06-096 CMR 115, BACT]
- G. NSPS, 40 CFR Part 60, Subpart JJJJ
LAWPCA shall meet all applicable requirements of 40 CFR Part 60, Subpart JJJJ for the cogeneration units, including:
1. Each cogeneration unit shall be maintained and operated according to the manufacturer's emission-related written instructions and records shall be kept of conducted maintenance. [40 CFR §60.4243, 40 CFR §60.4245, and 06-096 CMR 115, BACT]
 2. The cogeneration units are subject to emission requirements set forth in 40 CFR 60, Subpart JJJJ. Compliance with these emission requirements shall be demonstrated by certification from the manufacturer or an initial performance test and subsequent tests every 8760 hours or 3 years, whichever comes first, if a manufacturer certification is unavailable. [40 CFR §60.4233 and Table 1, and 40 CFR §60.4245]

(17) **Boilers**

- A. The boilers (2.2 MMBtu/hr each) shall fire biogas or natural gas. [06-096 CMR 115, BACT]

- B. Emissions from each of the boilers shall not exceed the following [06-096 CMR 115, BACT]:

Fuel	PM (lb/hr)	PM ₁₀ (lb/hr)	SO ₂ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Biogas	0.02	0.02	0.01	0.24	0.20	0.01
Nat'l Gas	0.02	0.02	0.001	0.22	0.18	0.01

- C. Visible emissions from the common boiler stack shall not exceed an opacity of 10% on a 6 minute block average basis, except for no more than one (1) six (6) minute block average in a 3 hour period. [06-096 CMR 101, BACT]

(18) **Flare**

- A. The flare (5.5 MMBtu/hr) shall fire biogas and shall only be operated when the digesters are in operation and the cogeneration units and boilers are unable to fire the biogas. [06-096 CMR 115, BACT]
- B. When the flare is in operation, LAWPCA shall not combust natural gas in both the cogeneration units and boilers as a normal mode of operation. [06-096 CMR 115, BACT]
- C. Emissions from the flare shall not exceed the following:

Pollutant	lb/MMBtu	Origin and Authority
PM	0.02	06-096 CMR 115, BACT

- D. Emissions from the flare shall not exceed the following [06-096 CMR 115, BACT]:

PM (lb/hr)	PM ₁₀ (lb/hr)	SO ₂ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
0.12	0.12	0.02	0.48	0.02	0.12

- E. Visible emissions from the flare shall not exceed an opacity of 10% on a 6 minute block average basis, except for no more than one (1) six (6) minute block average in a 3 hour period. [06-096 CMR 115, BACT]
- F. A log recording date, time, and duration of flare operations shall be maintained. [06-096 CMR 115, BACT]

(19) **Fugitive Emissions**

Visible emissions from a fugitive emission source (including stockpiles and roadways) shall not exceed an opacity of 20%, except for no more than five (5) minutes in any 1-hour period. Compliance shall be determined by an aggregate of the individual fifteen (15)-second opacity observations which exceed 20% in any one (1) hour. [06-096 CMR 101]

(20) **General Process Sources**

Visible emissions from any general process source shall not exceed an opacity of 20% on a six (6) minute block average basis, except for no more than one (1) six (6) minute block average in a 1-hour period. [06-096 CMR 101]

(21) LAWPCA shall notify the Department within 48 hours and submit a report to the Department on a quarterly basis if a malfunction or breakdown in any component causes a violation of any emission standard (38 M.R.S.A. §605).

DONE AND DATED IN AUGUSTA, MAINE THIS 1st DAY OF June, 2011.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Melanie Brooks
JAMES P. BROOKS, ACTING COMMISSIONER

The term of this license shall be five (5) years from the signature date above.

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: April 26, 2011

Date of application acceptance: May 3, 2011

Date filed with the Board of Environmental Protection:

This Order prepared by Kathleen E. Tarbuck, Bureau of Air Quality.

