



# Department of Environmental Protection

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## DRAFT

February 2, 2020

Ms. Rashi Akki, President  
Rockwood AG-Grid, LLC  
7 Greenbriar Lane  
Kennett Square, PA 19348

**RE: GRANVILLE**  
ePlace Authorization #: AQ0XX-000XXXX  
Application #: 20-AQ02F-0011-APP  
Approval #: WE-20-020  
FMF No.: 584586  
**PROPOSED**  
**AIR QUALITY PLAN APPROVAL**

Dear Ms. Akki:

The Massachusetts Department of Environmental Protection (“MassDEP”), Bureau of Air and Waste, has reviewed your Non-major Comprehensive Plan Application (“Application”) listed above. This Application concerns the proposed construction of a new engine and substantial reconstruction of an existing engine at Rockwood Farm located at 355 Granby Road in Granville, Massachusetts (the “Facility”). The Application bears the seal and signature of Michael T. Lannan, Massachusetts Registered Professional Engineer Number 45607.

This Application was submitted in accordance with 310 CMR 7.02 Plan Approval and Emission Limitations as contained in 310 CMR 7.00 “Air Pollution Control” regulations adopted by MassDEP pursuant to the authority granted by Massachusetts General Laws, Chapter 111, Section 142 A-O, Chapter 21C, Section 4 and 6, and Chapter 21E, Section 6. MassDEP’s review of your Application has been limited to air pollution control regulation compliance and does not relieve you of the obligation to comply with any other regulatory requirements.

MassDEP has determined that the Application is administratively and technically complete and that the Application is in conformance with the Air Pollution Control regulations and current air pollution control engineering practice, and hereby grants this **Plan Approval** for said Application, as submitted, subject to the conditions listed below.

Please review the entire Plan Approval, as it stipulates the conditions with which the Facility owner/operator (“Permittee”) must comply in order for the Facility to be operated in compliance with this Plan Approval.

**For Final Plan Approvals only:**

On **DATE**, public notice was published on the MassDEP website for public review and comment on the proposed Non-Major Plan Approval (ePlace Application number: 20-AQ02/03F-0011-APP) for your Facility located at 355 Granby Road in Granville, MA. The comment period ended **DATE**.

**Optional**

MassDEP also held a public hearing at the MassDEP office located at **STREET, TOWN, STATE** on **DATE**.

No comments were submitted - **OR** - Comments were received. They are summarized in the attached Response to Comments.

**1. DESCRIPTION OF FACILITY AND APPLICATION**

**A. FACILITY DESCRIPTION**

Rockwood Farm (the “Facility”) is located in Granville, Massachusetts and produces raw milk for wholesale distribution to cooperative processing facilities. The farm has approximately 310 cows. Rockwood Farm operates 700 acres of land at and nearby the Facility for crops to feed the cows.

**B. HISTORY**

In 2017 Rockwood AG-Grid, LLC (the Permittee) applied for and received a Non-major Comprehensive Plan Approval (“NmCPA”) (Transmittal No. X275354, dated 9/15/2017) to install an anaerobic digestion/biogas-to-energy system (the “Plant”), which consists of a 480 Kilowatt (“Kw”) biogas-fired combined heat and power engine/generator set, a back-up enclosed flare, and an 810,000 gallon anaerobic digestion system at Rockwood Farm. The biogas is used to produce electricity and heat via the lean burn engine. The heat is used by the Plant while the electricity is used by the Plant and the Facility as well as supplied to the electric grid via net metering.

The Plant combines the facility’s cow manure with other Source Separated Organic (“SSO”) materials, generated and trucked in by suppliers, to produce biogas. The SSO passes through an internal bar screen to remove contaminants and is macerated by a chopper pump to ensure a homogeneous consistency. The SSO is collected and homogenized at a separate pre-processing location and delivered to the plant as liquid slurry and stored in a 54,000-gallon concrete tank. The material is subsequently stirred 4 times per day to prevent stratification.

The anaerobic digestion system consists of an 810,000-gallon tank with a full working volume of feedstock, consisting of cow manure and SSO materials at an operating depth of twelve feet. The material is held for a period of up to 30 days. The combined feedstock has an ideal total solids content of eight percent (8%) percent by weight. Operating under this scenario, the Plant can generate up to 450 Kw of electricity per hour.

The current anaerobic digestion/biogas-to-energy system includes the following emission units (EUs):

1. SSO feedstock tank
2. anaerobic digester tank
3. engine and generator
4. enclosed backup flare
5. manure tank
6. effluent tank
- 7 & 7A. liquid fertilizer tanks

#### Cow Manure and Feedstock Tanks

The SSO Feedstock Tank designated as Emission Unit-1 (EU-1) is a two-vessel concrete vault with a cast concrete lid. Only two feet of the tank is above ground level. The east facing wall is 6 ft above ground level. The SSO tank has a capacity of 54,000 gallons which can provide a hydraulic storage buffer of up to 3 days of capacity for the Anaerobic Digester (“AD”) Tank.

The liquefied SSO feedstock is delivered to the site in tanker trucks. The access point is a lockable hatch to prevent unauthorized deliveries. The SSO is pumped into the Feedstock Tank, under air-tight conditions, with all displaced air filtered through a series of two carbon beds. The SSO passes over an internal bar screen four feet (4’) square to remove large solids. The screen is washed down after each delivery by the truck driver. Any remaining solids are removed by an employee with a rake.

Each vessel of the SSO has a working depth of twelve feet (12’) with a two-foot headspace. The SSO is heated by the generator’s coolant system and mixed by an internal chopper pump and an adjustable mixer. There is one chopper pump and one mixing unit in each of the two sections. The chopper pumps are fixed to the wall of each section one foot from the bottom, while the mixers are adjusted with a winch to attain the proper height for a given volume. The pumps and mixers are utilized 4 times per day. The mixers will run just prior to the pumps running to prevent the stratification of material, ensuring a consistent mix. Currently the plan is to provide seventy percent (70%) of the feed to the AD from this EU. SSO and manure will be periodically supplied to the AD to maintain the required solids/liquids/nutrients ratio in the AD of eight percent (8%) solids.

Air in the headspace of the SSO tank passes through a pollution control device (“PCD”) which consists of a two deep beds of activated carbon (PCD-1) to remove potential odors as the headspace air is displaced during filling. A fan, with a 138 cubic feet per minute (“cfm”)

capacity operates during filling operations and as pressure inside reaches predetermined levels. The first of two carbon beds in series has a face area of seven (7) square feet with a bulk density of twenty-seven (27) pounds per cubic foot and a volume of fifteen (15) cubic feet.

Odor is monitored at the inlet and outlet of the second carbon bed, by collecting weekly samples until the performance of the filter is determined. The filter is currently monitored by-weekly using a Draeger tube or an equivalent method approved by the MassDEP, to determine whether breakthrough has occurred<sup>1</sup>. When breakthrough of 5 parts per million hydrogen sulfide (“H<sub>2</sub>S”) is detected by the Draeger tube, a new carbon bed will be installed prior to any additional filling of the tank. A back-up carbon bed is kept on-site at all times to ensure continuous treatment of the displaced volume of gas.

The existing manure tank, EU-5, holds approximately 9,000 gallons. The manure is not heated prior to transfer into the AD. A ten horsepower (10 HP) submerged pump is located one foot from the bottom of the tank and is utilized four times per day to feed the AD the remaining thirty percent (30%) of the required volume.

### Anaerobic Digester Tank

The Anaerobic Digester Tank (“AD”) (EU-2) provides the mean hydraulic retention time (approximately 26-30 days) necessary to allow methanogenic bacteria to convert approximately sixty percent (60%) of the biomass into methane. The material in the AD, called digestate, will be heated to maintain an ideal temperature of approximately 100 degrees Fahrenheit (°F). The actual AD temperature will be maintained at approximately 90 - 100 °F via a heat exchanger using waste heat from the proposed CHP generator for optimal digestion.

EU-2 is cast in place concrete tank ninety-two feet (92’) in diameter with a working volume of 810,000 gallons. It is eighteen feet in height with a slightly concave roof. The tank operates at full volume with the fill level controlled by a weir. Excess material flows back into the manure tank via the weir. The working depth of sixteen feet (16’) leaves approximately two feet (2’) of headspace between the digestate and the top of the wall. The conditioned SSO from EU-1, and the manure from EU-5 are fed into the AD four times per day and the mixers are then run for one hour each of the four feedings to prevent stratification of any material inside the AD, and to ensure a complete and consistent mix.

Biogas storage is primarily within the two-foot headspace of the AD described above, the single membrane roof system marginally inflates and deflates to accommodate additional biogas however it is primarily designed to lay flat with a marginal concavity. Safe pressure levels are maintained by a pressure relief valve between the AD and the Flare (EU-4) that allows gas to vent if the pressure reaches 0.85 inches water column and will vent to atmosphere under

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<sup>1</sup> Breakthrough is considered to have occurred when the ratio of the concentration in the gas stream leaving the filter unit to the concentration in the feed is equal to 0.05 to 0.10.

emergency conditions. If pressure inside the AD reaches a negative pressure of 1.0-inch (-1.0”) water column a negative pressure valve will open to break the vacuum.

Iron impregnated wood chips inside the iron sponge scrubber bind H<sub>2</sub>S with ferric oxide removing it from the biogas stream. One iron sponge hydrogen sulfide removal system (PCD-2) provides sufficient H<sub>2</sub>S control to maintain the H<sub>2</sub>S average concentration to below 200 parts per million by volume (ppmv), prior to the combustion of the biogas in either lean burn engine, (EU-3 or EU -8) or the back-up enclosed flare (EU-4).

The H<sub>2</sub>S level is monitored daily at the outlet of PCD-2. When the H<sub>2</sub>S level is observed to be consistently rising, the treatment efficiency of the iron sponge scrubber will be monitored by checking the inlet and outlet H<sub>2</sub>S concentrations. It is predicted to take six months for breakthrough to occur. The media in the iron sponge will be completely replaced as needed based on monitoring results.

#### Effluent Management System

Effluent leaving the AD flows by gravity into the 14,000-gallon Effluent Tank (EU-6) for short term storage of one half-day. From EU-6, effluent is pumped via a power takeoff device, into a 1,200,000-gallon Liquid Fertilizer Storage Tank (EU-7). The liquid fertilizer can be pumped as needed onto fields by twelve horsepower (12 HP) submerged pump that is affixed three feet (3') from the bottom of the tank. A three million (3,000,000) gallon liquid fertilizer tank (EU-7A) is proposed for the future in a separate and independent solid waste RCC permit to MassDEP's Solid Waste Division. This added storage capacity would not affect the digestion process in any manner and would allow the farm to store the final stable liquid fertilizer product for longer periods of time. This will aid the farm in supplying liquid fertilizer to the field and crops on a more evenly distributed basis. The added storage capacity would also make the digester operation less dependent on farm operations and provide more flexibility by decoupling fertilizer storage needs from digestion and power production.

#### Existing Lean Burn Engine and Back-up Enclosed Flare

Biogas from the AD serves as fuel for the existing Guascor Model No. SFGLD 360 Engine (EU-3). The biogas contains approximately 607 British thermal units per standard cubic foot (Btu/scf) of gas. The methane concentration in the biogas is expected to be about 60% by volume while oxygen (O<sub>2</sub>) levels will be maintained between 0.2 and 4%.

The existing engine is capable of producing 480kW of electricity per hour but is currently de-rated to 450kW. At this rating the engine has a maximum heat input capacity of over 3.97 million British Thermal Units per hour (MMBtu/hr) and is capable of combusting up to 109 standard cubic feet per minute (scfm) of digester gas operating at 100% of the de-rated load. It is equipped with a ten (10) inch diameter vertical exhaust stack. The opening of this vertical stack is situated 40 feet above ground level. The current exhaust gas exit velocity from EU-3 is approximately seventy-three feet per second (73 fps) at a stack gas temperature of approximately

480 degrees Fahrenheit (°F). A catalytic oxidizer (PCD-3) is installed on EU-3 to reduce elevated carbon monoxide (CO) and formaldehyde emissions caused by operating the engine in lean-burn mode to reduce nitrogen oxide (NO<sub>x</sub>) emissions.

A back-up enclosed flare combusts the biogas whenever the engines are down for maintenance or an excess amount of gas is produced. The back-up enclosed flare (EU-4) has a maximum heat input capacity of 6.6 MMBtu/hr. EU-4 is capable of combusting up to 180 scfm of digester gas at any time excess gas is produced as well as during engine malfunction and maintenance. It has an infinite turndown ratio via a two-speed fan, to accommodate any amount of excess biogas. EU-4 is equipped with a 46.2-inch diameter vertical exhaust, the top of which is situated twenty feet (20') above ground level. The exhaust gas exit velocity from the flare will be approximately 10.7 feet per second (“fps”) at a stack gas temperature of approximately 1,400 °F.

### SCADA System

The Supervisory Control and Data Acquisition (SCADA) system monitors process control parameters such as digester temperature, digester gas biogas pressure, mixer on/off, pumps, control of heating zones in heat exchanger, and output generation from the engine/generator set in addition to being capable of controlling all system functions by operators that can remotely access the SCADA system via the internet. The SCADA system as well as the process tanks, effluent management system, and biogas processing equipment (i.e., engine, enclosed flare) are serviced by local technicians in the area.

A full inventory of spare parts for the entire plant are kept at an offsite location and available within two hours. Currently Martin has a facility in Uxbridge, MA which is located within two hours of the Plant. In addition, Martin maintains a larger facility in Ephrata, PA from which parts can be shipped express overnight. The Uxbridge facility has critical components while the Ephrata maintains an inventory of the “more robust” components.

### C. PROJECT DESCRIPTION

Because of the increase in SSO feedstock to the system, the amount of digestion/biogas has increased substantially more than the current lean burn engine can utilize. The Facility is proposing to increase the size of the existing lean burn engine (EU-3) and install a second smaller engine (EU-8) which will be located in an additional container unit. Total power output of the two proposed engines will be less than 1 Megawatt (Mw) which will still meet the Farm Best Available Control Technology (“BACT”) based on actual power production capacity.

The Permittee is proposing to upgrade the existing engine and generator (EU-3) with a current limit of 450 kW to provide 666 kW with a newly sized pollution control device (PCD-4) to meet the Farm BACT. The Siemens SGE Model No. SGE-36SL, 1200 RPM engine would be upgraded to 1,800 RPM. At this rating the engine has a maximum heat input of 6.07 MMBtu/hr and is capable of combusting up to 167 scfm of digester gas operating at 100% of the rated load.

Unlike the previous Approval, where this engine was permitted with a synthetic power limitation from 480 kW de-rated to 450 kW, the upgrade to the engine power output will not be limited. The lack of a power output limit does not suggest that the engine could, or would, operate at maximum capacity at any time.

The original permitted stack diameter was 10-inches, but it is unclear whether the engine will be able to operate at the higher exhaust gas flowrate with the current stack sizing. The upgraded engine emissions were modeled with the current 10-inch stack and an “up to” 14-inch diameter stack. The 14-inch stack corresponds to a good engineering stack velocity for pollution dispersion with less backpressure on the engine, however, the 14-inch stack represents the worst-case from a modeling perspective. The final stack diameter will be field-determined based upon backpressure concerns at a stack gas temperature of 595 degrees Fahrenheit (°F).

The existing catalytic oxidizer (PCD-3) will be replaced with a new, upsized CatOx, PCD-4, to allow similar overall removal percentages with the engines increased flowrate. This PCD, like the existing PCD, would be installed to address products of incomplete combustion (i.e. CO and formaldehyde), that will increase when the engine is operated in lean-burn mode to achieve Top-Case Farm BACT for NO<sub>x</sub>. This combination of lean burn for NO<sub>x</sub> reduction and the CatOx is a cost-effective way of minimizing two pollutants that inversely related during combustion.

The proposed second engine (EU-8) would be a MAN Model No. E2676, 1,800 RPM engine capable of producing 250 kW of electricity per hour. At this rating the engine would be operating at 100% of the rated load and would have a maximum heat input of 2.15 MMBtu/hr, while combusting up to 59 scfm of digester gas. This engine will be equipped with a catalytic oxidizer (PCD-5) to reduce CO and formaldehyde emissions. A seven (7) inch diameter vertical stack will exhaust at 30 feet above ground level. The exhaust gas velocity from EU-8 will be approximately sixty-five feet per second (65 fps) at an exhaust gas temperature of approximately 353 °F.

## D. REGULATORY REQUIREMENTS

### **1. State Requirements**

#### BACT

The Massachusetts Air Regulations require that BACT be applied for any source requiring plan approval under 310 CMR 7.02. The Top-Case Best Available Control Technology (BACT) Guidance for farm-based facilities with generation greater than 500 kW but less than 1,000 kW applies to this Facility as the application does not trigger a Prevention of Significant Deterioration (PSD) permit, or Lowest Achievable Emission Rate (LAER) under 310 CMR 7.00 Appendix A or Major New Source Review.

Air emissions and operating requirements from digester-gas-to-electricity operations (including internal combustion engines and flares) at Massachusetts farms engaged in “agriculture” or

“farming” as defined in M.G.L. c. 128, section 1A, managing manure waste through anaerobic digestion or anaerobic digestion of manure with other, source-separated organic material apply.

#### Air Dispersion Modeling

Emissions from the proposed upgraded Siemens SGE-36L 1,800 RPM engine and new MAN E2676 LE212 1,800 RPM engine were calculated for worst-case and potential emissions. The worst-case emissions assumed no control with the engine at full load, while the potential emissions considered the catalytic oxidizer (CatOx) manufacturer specified 85% and 90% control of carbon monoxide (CO) and formaldehyde respectively. In determining the worst-case and potential emissions it is assumed that the gas from the AD is comprised of 60% methane.

The Permittee modeled emissions impact based on maximum predicted emissions from the equipment. All impacts were below ambient air quality standards or air toxics guidelines with the exception of formaldehyde. The maximum modeled 24-hour concentrations were below the Threshold Exposure Limit (TEL) but the maximum modeled annual average concentrations were above the Allowable Ambient Limit (AAL). The permittee has proposed to utilize catalytic oxidizers to reduce formaldehyde emissions by ninety percent and is proposing to exhaust emissions through stacks which are as high as practical. These measures will minimize the ambient impacts from the formaldehyde.

The modeling reveals that the hillside and neighboring driveway are the locations of the highest recorded concentrations. Given that the operational life of the project is only 25 years and the location of the impact is not at a location where a house is anticipated to be built, the increased risk from formaldehyde due to this project is minimal.

#### Sound Monitoring and Modeling Study

Operation of the proposed equipment upgrade and addition will cause sound emissions that may cause noise. The application described the following proposed sound-emitting equipment and associated sound suppression and sound transmission prevention features:

EU-1: SSO Tank and associated PCD-1 (Carbon filter);

- blower fan will be enclosed in an insulated wooden housing or wrapped in lagging material,
- internal mixing/chopper system and pump are submerged in liquid,
- carbon filter (PCD-1) has no moving parts.

EU-2: AD Tank and associated PCD-2, (Iron Scrubber);

- internal mixing system and pumps are submerged in liquid,
- blower fan is enclosed in the insulated engine shack,
- iron sponge (PCD-2) has no moving parts.



EU-3: Combined Heat and Power engine/generator and associated cooling system;

- engine and generator are enclosed in a prefabricated insulated shack,
- no insulation is on the ceiling as it is comprised mostly of exhaust louvers to provide the necessary air flow for cooling,
- building air intake and exhaust louvers and doors are equipped with acoustical dampening materials,
- increased size of intake and exhaust fans to run at slower speeds,
- engine exhaust has critical silencer (hospital extreme grade SM4X-10T silencer or equivalent),
- catalytic oxidizer (PCD-4) has no moving parts,
- “low noise design” of radiator and water jacket fans and pumps,
- gas chiller optimized fan orifice to minimize sound and optimize air flow performance,
- radiator fan, gas chiller and coolant jacket pump noise are dampened by existing retaining wall to the west.

EU-4: Flare;

- Will be operated when engine is offline or when there is excess gas,
- Flare does not require the rest of the plant to be running, therefor of the other extraneous equipment: pumps, fans, etc., will not be sources of sound emissions.

EU-8: Combined Heat and Power engine/generator and associated cooling system;

- engine and generator are enclosed in a prefabricated insulated shack,
- no insulation is on the ceiling as it is comprised mostly of exhaust louvers to provide the necessary air flow for cooling,
- building air intake and exhaust louvers and doors are equipped with acoustical dampening materials,
- increased size of intake and exhaust fans to run at slower speeds,
- engine exhaust has critical silencer (hospital extreme grade Maxim M72-2 silencer or equivalent),
- catalytic oxidizer (PCD-5) has no moving parts,
- “low noise design” of radiator and water jacket fans and pumps,
- gas chiller optimized fan orifice to minimize sound and optimize air flow performance,
- radiator fan, gas chiller and coolant jacket pump noise are dampened by existing retaining wall to the west.

The Permittee previously conducted background sound level monitoring and established ambient sound levels at locations of interest based on these measurements and MassDEP guidance. The Permittee then calculated or modeled predicted sound impacts from measured ambient sound

levels and project sound emissions. Table A summarizes the predicted sound levels at the following locations.

<b>Table A</b>				
<b>Sound Modeling Locations</b>	Lowest Background Sound Level (L <sub>90</sub> , dBA)	Predicted Maximum Sound Level from Facility (dBA)	Total Predicted sound Level (dBA)	Predicted Sound Level Change (dBA)
Location 1: Southwest Property Line (long term)	32.0	37.4	37.9	+5.9
Location 2: Northwest Property Line (short term 1)	26.8	25.6	29.3	+2.5
Location 3: East Property Line (short term 2)	25.3	26.4	28.9	+3.6
Location 4: South Property Line (short term 3)	35.6	19.2	35.7	+0.1
Receptor 1: 286 Granby Road	26.8	21.0	27.8	+1.0
Receptor 2: 312 Granby Road	25.3	25.2	28.2	+2.9
Receptor 3: 355 Granby Road	32.0	39.9	40.5	+8.5
Receptor 4: 372 Granby Road	32.0	32.9	35.4	+3.4

Based on review of the engineering design of the Facility including sound mitigation measures and predicted Facility sound level impacts, MassDEP has determined that the design of the equipment incorporates sound suppression and sound transmission prevention elements that constitute necessary equipment, service and maintenance, and necessary precautions to prevent unnecessary sound emissions, as required by 310 CMR 7.10.

The Permittee is using the background sound data collected for the original permit. after the commencement of operation of facility. The sound survey will be performed in accordance with a protocol submitted to MassDEP for review and approval. The sound survey will demonstrate compliance with the MassDEP Noise Policy

## 2. Federal Requirements

### New Source Performance Standards (NSPS)

The Permittee has indicated that the Project is subject and shall comply with Federal New Source Performance Standards (“NSPS”) under 40 CFR 60 Subpart JJJJ– *Standards of Performance for Stationary Spark Ignition Internal Combustion Engines* because the existing 450 kW engine is being modified or reconstructed after June 12, 2006 and the new 250 kW engine was manufactured on or after July 1, 2008 and it will have a maximum engine power less than 500 horsepower (HP).

### 40 CFR Part 52.21 Prevention of Significant Deterioration (PSD) of Air Quality

MassDEP administers the federal PSD Program pursuant to the April 11, 2011 agreement between MassDEP and the New England Region of the United States Environmental Protection Agency (EPA) identified as “Agreement for Delegation of the Federal PSD Program by EPA to MassDEP” (PSD Delegation Agreement) and Title 40 CFR Part 124 – Procedures for Decision Making. Therefore, MassDEP evaluated whether PSD under Regulation 40 CFR 52.21 is applicable to the proposed project. The PSD Delegation Agreement directs that all PSD Permits issued by MassDEP under the Agreement follow the applicable procedures in 40 CFR Part 52, Section 52.21 and 40 CFR Part 124 regarding permit issuance, modification and appeals.

The Facility is not a major source pursuant to the PSD regulations of 40 CFR 52.21 and the potential emissions increases for all pollutants from the Project are well below, NSR, PSD and major thresholds. Using the emissions from the worst-case scenarios for each engine, the Facility has demonstrated, in Table B below, that the project will not have significant emissions increase of a regulated NSR pollutant and is therefore not a major modification as defined in 40 CFR 52.21. As a result, the project will not be subject to 40 CFR 52.21.

<b>Table B</b>				
<b>Pollutant</b>	<b>Worst Case<sup>1</sup>Proposed Engine - EU 3 (tons/yr)<sup>3</sup></b>	<b>Worst Case<sup>1</sup> New Engine - EU 8 (tons/yr)<sup>3</sup></b>	<b>Combination Worst Case (tons/yr)<sup>3</sup></b>	<b>Major Source Threshold (tons/yr)<sup>3</sup></b>
NO <sub>x</sub>	4.3	1.6	5.9	40
CO	15.5	2.3	17.8	100
VOC	6.9	3.9	10.8	50
SO <sub>2</sub>	1.5	0.53	2.1	40
PM <sup>2</sup>	0.79	0.3	1.1	25
Highest HAP (formaldehyde)	4.8	0.32	5.1	10

<sup>1</sup> The worst case emissions for NO<sub>x</sub>, CO, CO<sub>2</sub>, VOC and formaldehyde are calculated from lean burn emission factors supplied by the manufacturer.

- <sup>2</sup> The emissions for PM were calculated from the emission factor of 0.091 g/bhp-hr determined from the April 6, 2017 limit.
- <sup>3</sup> Tons per year = tons per 12 consecutive month period.
- <sup>4</sup> The combined worst case scenario is the maximum potential emissions from both engines combined operating 8,760 hours per year.

This Plan Approval, 20-AQ02F-0011-APP supersedes Plan Approval, Tr. #X275354, issued to the Permittee on 9/15/2017, in its entirety, with the exception that all plan application materials submitted as part of the Plan Approval Tr. #X275354 become part of this Plan Approval, 20-AQ02F-0011-APP.

## 2. EMISSION UNIT IDENTIFICATION

Each Emission Unit (“EU”) identified in Table 1 is subject to and regulated by this Plan Approval:

<b>Table 1</b>			
<b>EU</b>	<b>Description</b>	<b>Design Capacity</b>	<b>Pollution Control Device</b>
EU 1	SSO Feedstock Tank	54,000 gallons	Deep Bed Carbon Filter (PCD-1)
EU 2	Digester Tank	810,000 gallons	Iron Sponge H <sub>2</sub> S Dry Scrubber (PCD-2)
EU 3	Siemens Model No. SGE-36SL engine and genset	6.06 MMBtu/hr (heat input) 666 kW max output	Catalytic Oxidizer (PCD-4), operate engine in lean burn range
EU 4	Varec Biogas Model No. 244E Back-up enclosed flare	6.6 MMBtu/hr (heat input)	none
EU 5	Cow Manure Tank	9,000 gallons	none
EU 6	Effluent Transfer Tank	14,000 gallons	none
EU 7 EU 7A <sup>1</sup>	Liquid Fertilizer Storage Tanks	1,200,000 gallons 3,000,000 gallons	none none
EU 8	MAN Model No. 2676 LE212 engine and genset	2.17 MMBtu/hr (heat input) 250 kW max output	Catalytic Oxidizer (PCD-5), operate engine in lean burn range

**Table 1 Key:**

EU = Emission Unit	max = maximum
H <sub>2</sub> S = hydrogen sulfide	PCD = Pollution Control Device
kW = kilowatts	SSO = Source Separated Organics
MMBtu/hr = Million British thermal units per hour	No. = Number

**Table 1 Notes:**

<sup>1</sup> Tank was constructed after plant attained successful operation. Permittee notified MassDEP BAW Permitting Section Chief in writing at least thirty (30) days prior to start of storage tank construction.

### 3. APPLICABLE REQUIREMENTS

#### A. OPERATIONAL, PRODUCTION and EMISSION LIMITS

The Permittee is subject to, and shall not exceed the Operational, Production, and Emission Limits as contained in Table 2:

<b>Table 2</b>					
EU	Operational / Production Limit	Air Contaminant	Emission Limit		
			lb/hr	Tons per month	Tons per 12-month rolling period
EU 3 <sup>1</sup>	1. None	NO <sub>x</sub>	1.0	.86	4.3
		CO	0.53	0.47	2.3
		VOC	1.57	1.38	6.9
		PM including PM <sub>10</sub> /PM <sub>2.5</sub> <sup>2</sup>	0.18	0.16	0.79
		SO <sub>2</sub> @ 500ppmv H <sub>2</sub> S	0.84	N/A	N/A
		SO <sub>2</sub> @ 200ppmv H <sub>2</sub> S	N/A	0.3	1.5
		CO <sub>2</sub>	1,227	1,075	5,374
		Formaldehyde	0.110	0.096	0.48
		Opacity	<5%, EXCEPT 5 TO <10% FOR ≤2 MINUTES DURING ANY ONE HOUR		
		Smoke	310 CMR 7.06(1)(a)		
	2. Daily average of H <sub>2</sub> S shall be less than or equal to 200 ppmv <sup>3</sup>	H <sub>2</sub> S	N/A		

<b>Table 2</b>					
EU	Operational / Production Limit	Air Contaminant	Emission Limit		
			lb/hr	Tons per month	Tons per 12-month rolling period
EU 4	3. None	NO <sub>x</sub>	0.45	0.39	2.0
		CO	2.0	1.8	8.9
		VOC	0.4	0.3	1.7
		PM including PM <sub>10</sub> /PM <sub>2.5</sub> <sup>2</sup>	0.07	0.051	0.31
		SO <sub>2</sub> @ 500ppmv H <sub>2</sub> S	0.91	N/A	N/A
		SO <sub>2</sub> @ 200ppmv H <sub>2</sub> S	N/A	0.27	1.60
		CO <sub>2</sub>	1,229	897	5,383
		Opacity	<5%, EXCEPT 5 TO <10% FOR ≤2 MINUTES DURING ANY ONE HOUR		
	Smoke	310 CMR 7.06(1)(a)			
EU 4	4. Daily average of H <sub>2</sub> S shall be less than or equal to 200 ppmv <sup>3</sup>	H <sub>2</sub> S	N/A		
	EU 8 <sup>1</sup>	5. None	NO <sub>x</sub>	0.37	0.32
CO			0.08	0.068	0.34
VOC			0.89	0.78	3.9
PM including PM <sub>10</sub> /PM <sub>2.5</sub> <sup>2</sup>			0.07	0.059	0.30
SO <sub>2</sub> @ 500ppmv H <sub>2</sub> S			0.30	N/A	N/A
SO <sub>2</sub> @ 200ppmv H <sub>2</sub> S			N/A	0.11	0.53
CO <sub>2</sub>			404	354	1,769

<b>Table 2</b>					
<b>EU</b>	<b>Operational / Production Limit</b>	<b>Air Contaminant</b>	<b>Emission Limit</b>		
			<b>lb/hr</b>	<b>Tons per month</b>	<b>Tons per 12-month rolling period</b>
EU 8	6. None	Formaldehyde	0.004	0.003	0.016
		Opacity	<5%, EXCEPT 5 TO <10% FOR ≤2 MINUTES DURING ANY ONE HOUR		
		Smoke	310 CMR 7.06(1)(a)		
	7. Daily average of H <sub>2</sub> S shall be less than or equal to 200 ppmv <sup>3</sup>	H <sub>2</sub> S	N/A		
Facility-wide	8. None	NO <sub>x</sub>	1.8	1.6	7.9
		CO	2.6	2.7	11.6
		VOC	2.9	2.4	12.5
		PM including PM <sub>10</sub> /PM <sub>2.5</sub> <sup>2</sup>	0.32	0.27	1.4
		SO <sub>2</sub>	2.1	0.67	3.6
		CO <sub>2</sub>	2,860	2,326	12,526
	Formaldehyde	0.11	0.16	0.50	
9. Daily average of H <sub>2</sub> S shall be less than or equal to 200 ppmv <sup>3</sup>	H <sub>2</sub> S	N/A			

**Table 2 Notes:**

1. These emission limitations shall apply to all engine/generator loads. Compliance with these emission limitations shall be determined based on one-hour averages. These emission limits are based upon biogas containing 607 British thermal units per standard cubic foot (Btu/scf).
2. This emission limit is based on limited engine test data for PM emissions. The final emission limit will take into consideration results of engine emission testing per Table 3 Provision 3. The greatest emission rate of three (3) averaged runs will be selected and scaled up by approximately 10%. The newly



determined emission limit will be added to a revised Plan Approval and will account for variations in biogas heat content and will provide general operational flexibility.

3. H<sub>2</sub>S emissions are regulated by restricting the inlet H<sub>2</sub>S concentrations to the engines and back-up enclosed flare to less than or equal to 200 ppmv. SO<sub>2</sub> emissions are based upon 99.9 percent removal efficiency of the Iron Scrubber, PCD-2.

**Table 2 Key:**

CO = Carbon Monoxide

CO<sub>2</sub>eq = Carbon Dioxide equivalent

EU = Emission Unit

HAP (single) = maximum single Hazardous Air Pollutant

HAP (total) = total Hazardous Air Pollutants

g/HP-hr = grams per horsepower-hour

lb/hr = pounds per hour

lb/MMBtu = pounds per million British thermal units

lb/MWh = pounds per megawatt-hour

O<sub>2</sub> = Oxygen

ppm = parts per million

ppmvd = parts per million by volume

mg/l – milligrams per liter

NA = not applicable

NH<sub>3</sub> = Ammonia

NO<sub>x</sub> = Nitrogen Oxides

PM = Total Particulate Matter

PM<sub>10</sub> = Particulate Matter less than or equal to 10 microns in diameter

PM<sub>2.5</sub> = Particulate Matter less than or equal to 2.5 microns in diameter

SO<sub>2</sub> = Sulfur Dioxide

TPM = tons per month

TPY = tons per consecutive 12-month period

VOC = Volatile Organic Compounds

% = percent

> = greater than

< = less than

≥ = greater than or equal to

≤ = less than or equal to

°C = Degrees Centigrade

°F = Degrees Fahrenheit

**B. COMPLIANCE DEMONSTRATION**

The Permittee is subject to, and shall comply with, the monitoring, testing, record keeping, and reporting requirements as contained in Tables 3, 4, and 5:

<b>Table 3</b>	
<b>EU</b>	<b>Monitoring and Testing Requirements</b>
EU 3 EU 8	<p>1. The Permittee shall conduct emissions testing for NO<sub>x</sub>, CO, H<sub>2</sub>S, VOC, SO<sub>2</sub>, and CO<sub>2</sub> within 90 days of the commencement of continuous operation of the engine. All compliance testing shall be conducted in accordance with the test methods and procedures set forth in 40 CFR 60, Appendix A. All compliance testing shall be witnessed by MassDEP personnel at a mutually agreeable date and time. The Permittee shall submit a test protocol for the required emission test for review and MassDEP approval at least 30 days prior to the anticipated date of testing. The Permittee shall submit the emission test results report to MassDEP’s WERO within 60 days of completion of the compliance stack testing.</p> <p>2. For compliance testing purposes, these EUs shall be constructed so as to accommodate the emissions testing requirements as stipulated in 40 CFR Part 60, Appendix A. The two (2) inlet and two (2) outlet sampling ports should ideally be located at two duct diameters upstream and eight duct diameters downstream of any flow disturbance. The corresponding sampling ports should be 90 degrees apart from each other.</p>
EU 3	3. The Permittee shall conduct subsequent performance testing every 8,760 hours or 3 years from the initial emissions test, whichever comes first thereafter, to demonstrate compliance.
EU 3 EU 4 EU 8	4. The Permittee shall monitor the daily, monthly, and twelve month rolling biogas consumption for EU-3, EU-4, and EU-8 and the electrical output for EU-3 and EU-8 to document compliance with the emission limitations contained in Table 2 above.
EU 2 EU 3 EU 4 EU 8	5. The Permittee shall monitor daily the hydrogen sulfide concentration (in ppm by volume) exiting EU-2 before the biogas is combusted in either EU-3, EU-4 or EU-8 to document compliance with the emission limitations contained in Table 2 above. Permittee may petition MassDEP to test weekly once sufficient data has been obtained to show operation performs as described
EU 1	<p>6. The Permittee shall monitor daily the amount of SSO that EU-1 receives.</p> <p>7. The Permittee personnel shall be trained in the proper operation of the activated carbon system for EU-1.</p> <p>8. The Permittee shall monitor the activated carbon bed (PCD-1) on a daily basis. Permittee may petition MassDEP to test weekly once sufficient data has been obtained to show operation performs as described. When breakthrough of greater than 5 parts per million (ppm) of hydrogen sulfide has occurred, the Permittee shall immediately replace the activated carbon bed. No further deliveries of SSO shall be accepted until PCD-1 has been replaced.</p>
EU 2	9. The Permittee shall monitor the oxygen (O <sub>2</sub> ) content exiting EU-2 daily, so that the amount of O <sub>2</sub> measured in the cleaned biogas can average between 0.5 and 4% by volume. Permittee may petition MassDEP to test weekly once sufficient data has been obtained to show operation performs as described

<b>Table 3</b>	
<b>EU</b>	<b>Monitoring and Testing Requirements</b>
Facility-wide	10. If and when MassDEP requires it, the Permittee shall conduct emission testing in accordance with USEPA Reference Test Methods and Regulation 310 CMR 7.13.
	11. At least 30 days prior to emission testing, the Permittee shall submit to MassDEP for written approval a stack emission pretest protocol.
	12. Within 60 days after emission testing, the Permittee shall submit to MassDEP a final stack emission test results report.

**Table 3 Key:**

- |   |   |
|---|---|
| BAW = Bureau of Air & Waste             | O <sub>2</sub> = Oxygen                               |
| CO = Carbon Monoxide                    | NO <sub>x</sub> = Nitrogen Oxides                     |
| CO <sub>2</sub> = Carbon Dioxide        | PM = Total Particulate Matter                         |
| CMR = Code of Massachusetts Regulations | PCD = Pollution Control Device                        |
| CFR = Code of Federal Regulations       | SO <sub>2</sub> = Sulfur Dioxide                      |
| EU = Emission Unit                      | SSO = Source Separated Organics                       |
| H <sub>2</sub> S = Hydrogen Sulfide     | VOC = Volatile Organic Compounds                      |
| O <sub>2</sub> = Oxygen                 | USEPA = United States Environmental Protection Agency |
| % = Percent                             |   |

**Table 4**

EU	Record Keeping Requirements
EU 1 EU 2 EU 3 EU 4 EU 8	<p>1. The Permittee shall quantify all periods of excess emissions, even if attributable to an emergency/malfunction, startup/shutdown or equipment cleaning in the determination of annual emissions and compliance with the emission limits as stated in Table 2.</p> <p>2. The Permittee shall maintain a record keeping system for these EUs and associated PCDs to be established on-site. All such records shall be maintained up-to-date such that year-to-date information is readily available for MassDEP examination upon request and shall be kept on site for a minimum of five (5) years. Record keeping shall, at a minimum, include:</p> <ul style="list-style-type: none"> <li>a. Compliance records sufficient to document the actual monthly and twelve-month rolling emission rates of NO<sub>x</sub>, CO, VOC, total PM, SO<sub>2</sub>, H<sub>2</sub>S, and CO<sub>2</sub> from each EU, so as to determine compliance status with the emission limitations contained in Table 2 above. Such records shall include, but are not limited to, the daily, monthly, and twelve-month rolling biogas consumption rates for each applicable EU, electrical output for EU-3 and EU-8, emissions test results, monitoring equipment data and reports, and hours of operation.</li> <li>b. Maintenance: A record of routine maintenance activities performed on these EUs and their PCDs and monitoring equipment including, at a minimum, the type or a description of the maintenance performed on each and the date and time the work was completed.</li> <li>c. Malfunctions: A record of all malfunctions of these EUs, their associated PCDs and their monitoring equipment including, at a minimum: the date and time the malfunction occurred; a description of the malfunction and the corrective action taken; the date and time corrective actions were initiated; and the date and time corrective actions were completed and the equipment was returned to compliance.</li> </ul>
EU 3 EU 4 EU 8	<p>3. The Permittee shall maintain records on-site of the daily, monthly, and twelve-month rolling biogas consumption for EU-3 and EU-4 and the electrical output for EU-3 to document compliance with the emission limitations contained in Table 2 above.</p>
EU 2 EU 3 EU 4 EU 8	<p>4. The Permittee shall maintain daily on-site records of the maximum, minimum, and average hydrogen sulfide concentrations (in ppm by volume) exiting EU-2 and PCD-2 before the biogas is combusted in either EU-3, EU-4 or EU 8 to document compliance status with the emission limitations contained in Table 2 above</p>
EU 1	<p>5. The Permittee shall maintain daily records on-site of the amount of SSO that EU-1 receives.</p> <p>6. The Permittee personnel shall record the date, time, and delivery amount of SSO in a logbook, or similar record keeping system, that shall be maintained near EU-1.</p> <p>7. The Permittee shall maintain weekly records on-site on the condition of the activated carbon system (PCD-1) and install a fresh second drum of activated carbon when breakthrough has occurred.</p>
EU 2	<p>8. The Permittee shall maintain weekly records on-site of the oxygen (O<sub>2</sub>) content in EU-2 so that the amount of O<sub>2</sub> measured in the cleaned biogas is maintained between 0.5 and 4% by volume.</p>

<b>Table 4</b>	
<b>EU</b>	<b>Record Keeping Requirements</b>
Facility-wide	9. The Permittee shall maintain adequate records on-site to demonstrate compliance status with all operational, production, and emission limits contained in Table 2 above. Records shall also include the actual emissions of air contaminant(s) emitted for each calendar month and for each consecutive twelve-month period (current month plus prior eleven months). These records shall be compiled no later than the 15 <sup>th</sup> day following each month. An electronic version of a MassDEP approved record keeping form, in Microsoft Excel format, may be downloaded at <a href="https://www.mass.gov/guides/massdep-facility-wide-emission-restrictions-caps-reporting#WorkbookforReportingOn-SiteRecordKeeping">https://www.mass.gov/guides/massdep-facility-wide-emission-restrictions-caps-reporting#WorkbookforReportingOn-SiteRecordKeeping</a> .
	10. The Permittee shall maintain records of monitoring and testing as required by Table 3.
	11. The Permittee shall maintain a copy of all noise survey results on-site.
	12. The Permittee shall maintain a copy of this Plan Approval, underlying Application and the most up-to-date SOMP for the EU(s) and PCD(s) approved herein on-site.
	13. The Permittee shall maintain a record of routine maintenance activities performed on the approved EU(s), PCD(s) and monitoring equipment. The records shall include, at a minimum, the type or a description of the maintenance performed and the date and time the work was completed.
	14. The Permittee shall maintain a record of all malfunctions affecting air contaminant emission rates on the approved EU(s), PCD(s) and monitoring equipment. At a minimum, the records shall include: date and time the malfunction occurred; description of the malfunction; corrective actions taken; the date and time corrective actions were initiated and completed; and the date and time emission rates and monitoring equipment returned to compliant operation.
	15. The Permittee shall maintain records required by this Plan Approval on-site for a minimum of five (5) years.
	16. The Permittee shall make records required by this Plan Approval available to MassDEP and USEPA personnel upon request.

**Table 4 Key:**

EU = Emission Unit  
 CO = Carbon Monoxide  
 CO<sub>2</sub> = Carbon Dioxide  
 CMR = Code of Massachusetts Regulations  
 CFR = Code of Federal Regulations  
 H<sub>2</sub>S = Hydrogen Sulfide  
 NO<sub>x</sub> = Nitrogen Oxides  
 % = Percent

PCD = Pollution Control Device  
 PM = Total Particulate Matter  
 PCD = Pollution Control Device  
 SO<sub>2</sub> = Sulfur Dioxide  
 SOMP = Standard Operating and Maintenance Procedure  
 SSO = Source Separated Organics  
 VOC = Volatile Organic Compounds  
 USEPA = United States Environmental Protection Agency

<b>Table 5</b>	
<b>EU</b>	<b>Reporting Requirements</b>
EU 3 EU 8	<p>1. The Permittee shall submit a compliance test protocol on the required initial compliance test to MassDEP’s Western Regional Office (WERO) for review and approval at least 30 days prior to the scheduled commencement of said testing. Test protocols for any subsequent required emissions testing shall be submitted to MassDEP’s Western Regional Office (WERO) for review and approval at least 30 days prior to the scheduled commencement of said testing.</p> <p>2. The Permittee shall submit the emission test results report to WERO for review within 60 days of the completion of any required compliance stack testing. Subsequent emission test results shall be submitted to WERO.</p>
EU 1 EU 2 EU 3 EU 4 EU 8	<p>3. The Permittee shall submit an up-to-date Standard Operating and Maintenance Procedures (SOMP) for these EUs and PCDs to WERO within 60 days of completion of their required initial compliance testing. Any subsequent changes to the SOMP shall be submitted to WERO, within 15 days of said revision(s)</p> <p>4. The Permittee shall notify MassDEP’s WERO, ATTN: BAW Permit Chief, within three (3) business days by fax at (413) 784-1149 of any exceedances of the H<sub>2</sub>S emission limit found in Table 2 above. In the same manner, the Permittee shall notify MassDEP whenever the H<sub>2</sub>S gas monitoring probe is offline and again when it is back on-line.</p>
Facility-wide	<p>5. The Permittee shall submit to MassDEP all information required by this Plan Approval over the signature of a “Responsible Official” as defined in 310 CMR 7.00 and shall include the Certification statement as provided in 310 CMR 7.01(2)(c).</p> <p>6. The Permittee shall notify the Western Regional Office of MassDEP, BAW Permit Chief by telephone: (413) 755-2115, email: Marc.Simpson@mass.gov or fax: (413) 784-1149, as soon as possible, but no later than one (1) business day after discovery of an exceedance(s) of Table 2 requirements. A written report shall be submitted Permit Chief at MassDEP within three (3) business days thereafter and shall include: identification of exceedance(s), duration of exceedance(s), reason for the exceedance(s), corrective actions taken, and action plan to prevent future exceedance(s).</p> <p>7. The Permittee shall provide a copy to MassDEP of any record required to be maintained by this Plan Approval within 30-days from MassDEP’s written request.</p>

**Table 5 Key:**

EU = Emission Unit  
 BAW = Bureau of Air and Waste  
 CMR = Code of Massachusetts Regulations

PCD = Pollution Control Device  
 SOMP = Standard Operating and Maintenance Procedures

#### 4. SPECIAL TERMS AND CONDITIONS

A. The Permittee is subject to, and shall comply with, the Special Terms and Conditions as contained in Table 6 below:

<b>Table 6</b>	
<b>EU</b>	<b>Special Terms and Conditions</b>
EU 2	1. The O <sub>2</sub> content in the cleaned biogas shall average between 0.2 and 4% by volume.
EU 3 EU 8	2. The Permittee shall house EU-3 and EU-8 in acoustically treated enclosures for sound mitigation with acoustic noise suppression for the air intakes and exhaust louvers to minimize the potential of a pure tone condition. In addition, EU-3 and EU-8 shall be equipped with extreme grade silencers (a SMS Model SM4x-10-ST or equivalent and a Maxim Model M72-2 or equivalent respectively) concurrent with the installation of the EU(s).
EU 4	3. The Permittee shall provide raptor protection at the enclosed flare exit.
EU 3 EU 4 EU 8	4. The Permittee shall properly operate and maintain PCD-2 for the purpose of maintaining the H <sub>2</sub> S concentration below 200 ppmv prior to the combustion of the biogas in these EUs.
Facility- Wide	5. This Plan Approval, ePlace Authorization No. XXXX, supersedes Plan Approval, Tr #X275354, issued to the Permittee on September 15, 2017, in its entirety, with the exception that all plan application materials submitted as part of the Plan Approval Tr #X275354 become part of this Plan Approval ePlace Authorization No. XXXXX.
	6. The Permittee shall operate the subject EUs consistent with the final SOMP and the conditions/parameters established during the initial compliance test.
	7. The Permittee shall install silencers on the discharges of the process blowers.
	8. The Permittee shall install materials in the roof and walls to attenuate sound transmission.
	9. A full inventory of spare parts for the entire anaerobic digestion facility shall be kept at an offsite location for use within two hours of the facility.

<b>Table 6</b>	
<b>EU</b>	<b>Special Terms and Conditions</b>
Facility-Wide	<p>10. The Permittee shall submit a standard operations and maintenance plan (SOMP) for the activated carbon system, the iron sponge hydrogen sulfide removal system and the catalytic oxidizer to MassDEP, WERO, ATTN: BAW Permit Chief, within sixty (60) days of startup of the Facility. This plan shall be implemented and followed immediately upon startup of the Facility and, at a minimum, include the following information:</p> <ul style="list-style-type: none"> <li>a. A description of each system, including materials of construction and key operating parameter value(s) or range(s);</li> <li>b. A description of how each said system shall be operated and maintained, including a schedule for routine maintenance and material replacement, equipment specifications of the system’s odorous air blower, and dimensions and location of each system;</li> <li>c. A description of how each system’s key operating parameters shall be monitored, and corrective actions performed if any key operating parameter(s) fall outside its (their) expected value(s) or range(s);</li> <li>d. A description of any periodic sampling or testing performed on each system and emissions exiting it for odor-causing compounds; and</li> <li>e. A description of how any system malfunctions shall be reported to the MassDEP.</li> </ul>
	<p>11. This Facility may be subject to the Federal New Source Performance Standards (NSPS) for Stationary Spark Ignition Internal Combustion Engines (40 CFR Part 60 Subpart JJJJ). Since MassDEP has not accepted delegation for Subpart JJJJ, you are advised to consult with the EPA for additional information. There may be additional notification, record keeping and reporting requirements. Their address is US EPA Region 1, 5 Post Office Square – Suite 100, Boston, MA 02109-3912</p>
	<p>12. This Facility may be subject to the Federal National Emissions Standards for Hazardous Air Pollutants (NESHAPs) for Stationary Reciprocating Internal Combustion Engines (RICE) under 40 CFR Part 63 Subpart ZZZZ. This regulation includes stationary RICE units at an area source. Since MassDEP has not accepted delegation for Subpart ZZZZ, you are advised to consult with the United States Environmental Protection Agency (USEPA) for additional information. There may be additional notification, record keeping and reporting requirements. Their address is USEPA Region 1, 5 Post Office Square – Suite 100, Boston, MA 02109-3912.</p>
	<p>13. Compliance with the conditions of this approval does not relieve the Permittee from the obligation to comply with 310 CMR 7.01 and 310 CMR 7.10 when operating the approved Plant or any other activities at the Facility.</p>

**Table 6 Key**

BAW = Bureau of Air and Waste  
 CMR = Code of Massachusetts Regulations  
 EU = Emission Unit  
 H2S = Hydrogen Sulfide  
 USEPA = United States Environmental Protection Agency

O2 = Oxygen  
 PCD = Pollution Control Device  
 ppmv = Parts per Million by Volume  
 SOMP = Standard Operating and Maintenance Procedures  
 % = Percent



- B. The Permittee shall install and use an exhaust stack, as required in Table 7, on each of the Emission Units that is consistent with good air pollution control engineering practice and that discharges so as to not cause or contribute to a condition of air pollution. Each exhaust stack shall be configured to discharge the gases vertically and shall not be equipped with any part or device that restricts the vertical exhaust flow of the emitted gases, including, but not limited to, rain protection devices known as “shanty caps” and “egg beaters.”
- C. The Permittee shall install and utilize exhaust stacks with the following parameters, as contained in Table 7, for the Emission Units that are regulated by this Plan Approval:

<b>Table 7</b>				
<b>EU</b>	<b>Stack Height Above Ground (feet)</b>	<b>Stack Inside Exit Dimensions (inches)</b>	<b>Nominal Stack Gas Exit Velocity Range (feet per second)</b>	<b>Nominal Stack Gas Exit Temperature Range (°F)</b>
EU 3	40	14.0	58.7	595
EU 4	20	46.2	10.7	1,400
EU 8	28	7.0	65	353

**Table 7 Key:**

EU = Emission Unit

°F = Degree Fahrenheit

**5. GENERAL CONDITIONS**

The Permittee is subject to, and shall comply with, the following general conditions:

- A. Pursuant to 310 CMR 7.01, 7.02, 7.09 and 7.10, should any nuisance condition(s), including but not limited to smoke, dust, odor or noise, occur as the result of the operation of the Facility, then the Permittee shall immediately take appropriate steps including shutdown, if necessary, to abate said nuisance condition(s).
- B. If asbestos remediation/removal will occur as a result of the approved construction, reconstruction, or alteration of this Facility, the Permittee shall ensure that all removal/remediation of asbestos shall be done in accordance with 310 CMR 7.15 in its entirety and 310 CMR 4.00.

- C. If construction or demolition of an industrial, commercial or institutional building will occur as a result of the approved construction, reconstruction, or alteration of this Facility, the Permittee shall ensure that said construction or demolition shall be done in accordance with 310 CMR 7.09(2) and 310 CMR 4.00.
- D. Pursuant to 310 CMR 7.01(2)(b) and 7.02(7)(b), the Permittee shall allow MassDEP and / or USEPA personnel access to the Facility, buildings, and all pertinent records for the purpose of making inspections and surveys, collecting samples, obtaining data, and reviewing records.
- E. This Plan Approval does not negate the responsibility of the Permittee to comply with any other applicable Federal, State, or local laws or regulations now or in the future.
- F. The Application is incorporated into this Plan Approval by reference. Should there be any differences between the Application and this Plan Approval, the Plan Approval shall govern.
- G. Pursuant to 310 CMR 7.02(3)(k), MassDEP may revoke this Plan Approval if the construction work is not commenced within two years from the date of issuance of this Plan Approval, or if the construction work is suspended for one year or more.
- H. This Plan Approval may be suspended, modified, or revoked by MassDEP if MassDEP determines that any condition or part of this Plan Approval is being violated.
- I. This Plan Approval may be modified or amended when in the opinion of MassDEP such is necessary or appropriate to clarify the Plan Approval conditions or after consideration of a written request by the Permittee to amend the Plan Approval conditions.
- J. Pursuant to 310 CMR 7.01(3) and 7.02(3)(f), the Permittee shall comply with all conditions contained in this Plan Approval. Should there be any differences between provisions contained in the General Conditions and provisions contained elsewhere in the Plan Approval, the latter shall govern.

## **6. MASSACHUSETTS ENVIRONMENTAL POLICY ACT**

MassDEP has determined that the filing of an Environmental Notification Form (ENF) with the Secretary of Energy & Environmental Affairs, for air quality control purposes, was not required prior to this action by MassDEP. Notwithstanding this determination, the Massachusetts Environmental Policy Act (MEPA) and 301 CMR 11.00, Section 11.04, provide certain “Fail-Safe Provisions,” which allow the Secretary to require the filing of an ENF and/or an Environmental Impact Report (EIR) at a later time.

## 7. **APPEAL OF DECISION**

This Decision is an action of MassDEP. If you are the applicant, an aggrieved person who has submitted written comments, where applicable, or a ten persons group that has submitted written comments, where applicable, you may request an adjudicatory hearing in accordance with 310 CMR 7.51(1). A request for a hearing must be made in writing and postmarked within twenty-one (21) days of the date of issuance of this Decision.

Under 310 CMR 1.01(6)(b), the request for adjudicatory hearing must state clearly and concisely the facts which are the grounds for the request, and the relief sought. Additionally, the request must state why the Decision is not consistent with applicable laws and regulations. In the request, an aggrieved person must state with specificity the basis of his or her claim of aggrievement. A ten persons group that files a request for an adjudicatory hearing must include affidavits from each person of the group stating their intent to be a part of the group and to be represented by the group's authorized representative. The request must comply with all other requirements of 310 CMR 1.01.

The issues raised in the request for adjudicatory hearing are limited to the subject matter of this Decision and are limited further to the issues raised during the public comment period. If the issue was not raised during the public comment period, the issue may be raised upon showing that it was not reasonably possible with due diligence to have raised such matter during the public comment period or for good cause shown.

The hearing request along with a valid check payable to Commonwealth of Massachusetts in the amount of one hundred dollars (\$100.00) and a completed Adjudicatory Hearing Fee Transmittal Form found at <http://www.mass.gov/eea/docs/dep/service/adr/adjherfm.doc> must be mailed to:

Commonwealth of Massachusetts  
Department of Environmental Protection  
P.O. Box 4062  
Boston, MA 02211

An aggrieved person or a ten persons group shall send a copy of the request for an adjudicatory hearing by first class mail to the Applicant and MassDEP's contact person listed in the Decision.

The request will be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver as described below.

The filing fee is not required if the appellant is a city or town (or municipal agency), county, district of the Commonwealth of Massachusetts, the Massachusetts Bay Transportation Authority, federally recognized Indian tribe housing authority, effective January 14, 1994, or a municipal housing authority. MassDEP may waive the adjudicatory hearing filing fee for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file, together with the hearing request as provided above, a request for the waiver

of the fee and an affidavit setting forth the facts believed to support the claim of undue financial hardship as specified in 310 CMR 4.06(2).

Should you have any questions concerning this Plan Approval, please contact Todd Wheeler by telephone at (413) 755-2297, or in writing at the letterhead address.

---

Marc Simpson  
Permit Chief  
Bureau of Air and Waste

ecc: MassDEP/Boston - Yi Tian  
Tech Environmental – Katherine Mears