Exhibit SAD1-17

December 10, 2018

Vanguard Renewables
Attention: **Ms. Sol Ucciani**
20 Walnut Street, Suite 308
Wellesley, MA 02481
USA

Re: Biogas Composition and System Controls

Dear Ms. Ucciani,

At your request, the purpose of this letter is to provide an explanation of the composition of the expected biogas at the Salisbury anaerobic digester, and the control mechanisms that are in place at the anaerobic digester system to ensure the generation of quality biogas and maintenance of system tolerances.

Biogas Composition

The proposed anaerobic digester in Salisbury, Vermont, is a completely mixed mesophilic anaerobic digester that will generate biogas from dairy manure and clean organic waste materials. As such the biogas that is produced will have the following characteristics:

Water Vapor – The anaerobic digester operates at 104 degrees Fahrenheit and the biogas will be saturated with water vapor.

Methane (CH_4) – The expected methane content of the biogas is 60% (by volume). The methane content of biogas derived from similar feedstocks can vary from approximately 55-70% (by volume). The methane content of biogas is analyzed continuously using real time gas monitoring equipment.

Carbon Dioxide (CO_2) – The expected carbon dioxide content of the biogas is 40% (by volume). The carbon dioxide content of biogas derived from similar feedstocks can vary from approximately 30-45% (by volume). The carbon dioxide content of biogas is analyzed continuously using real time gas monitoring equipment.

Hydrogen Sulfide (H_2S) – The H_2S content of the biogas is anticipated to be 500 ppm H_2S. The concentration of H_2S in the biogas depends upon the feedstocks being used and the sulfur content of those feedstocks. The H_2S content of biogas is analyzed continuously using real time gas monitoring equipment.

The H_2S concentration in the biogas is controlled via two mechanisms. First and foremost H_2S is controlled through the testing and selection of incoming feedstock. Testing is done on a routine basis on the feedstock to determine the sulfur content of each feedstock.

The "recipe" for the anaerobic digester is developed to ensure that H_2S levels in the biogas are maintained at or below 500 ppm H_2S. Secondly, in the event that a load of organics is received that causes a spike in H_2S levels, the anaerobic digester can be dosed with ferric chloride or ferric hydroxide to convert H_2S to $Fe_2(SO_4)_3$ (which is contained in the digestate).

Beyond the composition described above, the biogas would not contain, or have de minimis levels of, other constituents.

Equipment and Systems

The following equipment is in place to ensure the production of biogas remains within specifications.

1. Hydrolyzer

All off-farm feedstock is received in the hydrolyzer. The hydrolyzer pre-processes organic feedstocks prior to use as a feedstock in the anaerobic digester. The temperature in the tank is measured using a temperature sensor; internal temperature is maintained at 104 degrees Fahrenheit via the hydrolyzer heating control. The combination of the mixer and pump in the tank is operated in mix mode in order to obtain a homogeneous, hydrolyzed mixture. The level in the tank is measured in inches and converted to the percent range (0-100%); the pump will turn off when 0% is indicated. The hydrolyzer level is maintained to allow for incoming substrates and pH adjustment. The pH of the hydrolyzer liquid is maintained above pH 5. If the pH of the hydrolyzer liquid does not increase to the desired reading, effluent from the digester can be introduced. Hydrolyzed substrates are pumped directly to the digester. This tank prepares material for anaerobic digestion within the main digester and helps ensure the quality of the biogas that is generated.

The table below summarizes the controls available on the hydrolyzer tank.

Equipment	Function	Limits	Operating Range
Temperature sensor	Hydrolyzer liquid temperature control	86 - 140°F	95 – 113°F
Pump	Agitation/transfer		Agitate/pump
Mixer	Agitation		50-100%
Level Sensor	Level indication/control	0 – 240"	0- 100%
Hydrolyzer heat control valve	Hydrolyzer liquid temperature control	32 – 212°F	176 – 194°F
pH meter	Hydrolyzer liquid pH control	2 – 10	5 – 6

2. Anaerobic Digester

The anaerobic digester is operated and monitored to ensure the quality of the biogas that is produced, and that changes in feedstock mixtures, pressure, and temperature are adequately controlled so as to remain within system tolerances.

The hydraulic retention time of the anaerobic digester system (hydrolyzer and digester) is a minimum of 20 days (higher in Salisbury).

The temperature of the liquid in the digester is measured by an immersed temperature sensor; internal temperature is maintained at 104 degrees Fahrenheit, via the anaerobic digester hot water heating control system. Maintaining a consistent digester temperature for mesophilic operation allows for maintained biogas production and quality. If the temperature of the digester goes below 100 degrees Fahrenheit or above 108 degrees Farenheit, the methanogenic bacteria become less active and biogas production and biogas quality (methane percentage) may decrease.

The mixers in the digester are operated in a 17% Duty Cycle Mode (ten minutes out of every hour). The purpose of the mixers is to minimize settling in the digester as well as to prevent the formation of mat layers.

The digester is covered with a flexible membrane which allows for gas storage in the freeboard space of the digester. The membrane is locked in place and sealed using an inflatable membrane securement system or “Seeger Clip” (the compressed air supply is provided by a dedicated compressor), as well as a net restraint which is secured to the digester on top of the flexible membrane to protect the membrane from stretching and decrease movement of the membrane.

The pressure in the freeboard space of the digester is maintained between 1 and 3 inches of water column (in w.c.). Should the pressure in the freeboard reach 4 in w.c., the digester pressure regulating valves will direct gas to the flares. Should the freeboard pressure reach 5 in w.c., the digester hot water heating valve will close, the digester mixer will shut down, the hydrolyzer pump will shut down and the liquids tank pump will shut down.

The sight glass on the digester provides an opportunity to observe digester conditions such as mixer performance, mat formation and foaming. The sight glass is equipped with an interior wiper for condensation removal. The valve hutch is also equipped with a CH_4 sensor; when the sensor is in alarm status, all liquid inputs to the digester will be suspended and the operator will be notified via the operator workstation. An audible alarm will sound and a strobe light will be lit.

The table below summarizes the controls available on the hydrolyzer tank.

Equipment	Function	Limits	Operating Range
Temperature sensor	Digester liquid temperature control	86 - 140°F	100 – 108°F
Mixer	Agitation	15 kW	On/off
Digester level Sensor	Level indication	0 – 96 in.	0 – 72 in.

Equipment	Function	Limits	Operating Range
Digester heat control valve	Digester liquid temperature control	32 – 212°F	176 – 194°F
Membrane Securement System (Seeger Clip)	Gas tight seal for digester membrane	0 – 75 psi	70-75 psi
Air compressor	Membrane securement system compressed air supply	0 – 100 psi	75 psi
Pressure control valve	Prevent over pressurization of digester freeboard	0 – 12 in.w.c.	1-4 in.w.c.
Pressure relief valve	Prevent over pressurization/vacuum of digester freeboard	-2 – 5 in.w.c.	-2 – 5 in.w.c
Isolation valve	Digester level control	Open/closed	Normally open
Sight glass w/ internal wiper	Observation of digester conditions	N/A	N/A
Methane Monitor	Monitor for presence of fugitive biogas	0 – 15 % LEL = 5% UEL = 15%	0 – 5 %
Audible alarm	Alert operator of presence of fugitive biogas	0 – 95 dB	95 dB
Strobe light	Alert operator of presence of fugitive biogas	0 – 2 flashes per second	1 – 2 flashes per second
Biogas Isolation Valves	Stop flow of biogas to the flares and biogas upgrader	Open/Closed	Normally Open
Flares	Combustion of excess biogas	0-150 cfm each	N/A
Thermal valves	Flame back prevention	N/A	N/A

If you have any questions regarding the contents of this letter, please do not hesitate to contact me.

Kind Regards,

Claire Allen

Claire Allen, PEng