



August 16, 2012

Lisa M. Porter
Bruno DiBello
NYSDEC Deputy Permit Administrator
Environmental Permits, Region 9
270 Michigan Ave.
Buffalo, NY 14203

RECEIVED
Region 9- Div. of Air
AUG 20 2012
N.Y.S. DEPT. OF
ENVIRONMENTAL CONSERVATION

RE: Buffalo and Niagara BioEnergy
Anaerobic Digester System Facilities
Dec No. 9-1468-00224/00001
Town of West Seneca, Erie County
Dec No. 9-2940-00191/00001
Town of Wheatfield, Niagara County

Dear Lisa and Bruno:

From July 19, 2012 e-mail:

General Questions:

1. Is this project funded? *Yes*
2. Have you determined which facilities will supply the digester feedstock, i.e. biosolids, agricultural and food waste? *Yes, but no firm commitments yet. Waste generator surveys attached. See attachment A*
3. Have you considered building plant near/at WWTP to reduce transportation of biosolids? *No - we are less than ½ mile from Niagara County Sewer District #1 and they will likely be supplying us with biosolids. We talked to NCSD#1, but they were at least a year out before they would talk to us seriously about co-locating, so we moved forward on our own site.*
4. How soon will you need permit? *We want to break ground as soon as possible.*
5. Please provide electronic versions of drawings/plans - hard to read. *11" X 17" copy provided to Marcia Ladiana on August 2, 2012.*
6. Appendix C for both facilities contains Wheatfield information. *This is typical information for local building codes and is demonstrative of both sites as noted in the applications.*

Digester:

1. Is digestion process continuous or batch? *Continuous*
2. What is retention time, operating temperature, etc.? *Mesophilic (100^o F) 20 to 30 days*
3. How will facility address digester upsets? Can proposed storage accommodate accumulation of waste during this period? *Daily monitoring to prevent upsets. Yes to storage facility. We need to discuss earthen lagoon siting with you. Site operator runs process control test at site (minimum of 3 times/week) to monitor digestion efficiency. Daily reporting to lab/engineering/operation manager is required from site operator. Refer to site SOP.*
4. How will digester be monitored to ensure proper performance, i.e. BOD, pH, temperature, etc. Provide Lab/Ops plan *Yes, there is a SCADA system; in Wooster, Ohio, monitoring is set up and the alarms that get sent as texts to the operator and the backup personnel*
5. Need to provide O&M Plan. **See attachment B**

Boiler:

1. Do boilers have natural gas as backup for heating digesters during microbial upsets? *Yes*
2. Table 5: Summary of Biogas Boiler Emissions - Provide source for emission factors and sample calculation for development of EFs. Note: AP-42 Section 2.4 Table 2.4-5 shows EFs for NO_x, CO and PM for boiler with low NO_x burners and FGR @ 33 lb NO_x/MM scf methane, 5.7 lb CO/ MM scf methane and 8.2 lb PM (mostly 2.5)/ MM scf methane. Since boiler is small probably not low NO_x. *Pulled from vendor specs*

Liquid and Solids OUT:

1. How will solids and liquids in digested material be separated? *No*
2. How will you prevent odor problems during filling of tanker trucks with digested liquid (and/or solid material) leaving the facility? *Minimized by connections, but cannot be totally eliminated. Goes to the biofilter.*
3. Where will offsite storage of liquid waste occur? *We don't store liquid waste, we only store digested fertilizer. At a lagoon site to be determined for Buffalo BioEnergy and on-site for Niagara BioEnergy.*
4. Will there be any onsite storage of liquid and or solid digested material? *Minimal. There is no storage of liquid or solids on site. NBE adjacent lagoon*
5. What is the Temporary Material and Topsoils stockpile area designated on site plan going to be used for? *Staging area during construction.*

Biofilter: See attachment C

1. Need more information on biofilter design, i.e. filter media, residence time, flow rate, etc. Note: Application provided removal efficiency of 90% (what is this based on?) and filter bed dimensions: 9' x 20' x 6' (40 cu yd). See attached.
2. Need to vent the pressure relief valves on the equalization tank and dual purpose tank to biofilter.
3. Is grinder enclosed or is it just vented to biofilter via building exhaust? Building that contains solids receiving pit, grinder, macerator, etc. must be under negative pressure in accordance with USEPA Reference Method 204. Under negative air to biofilter.
4. Need to submit an Operation and Maintenance (Routine/Preventative) Plan for the biofilter and associated equipment. This must include possible biofilter upsets/malfunctions and corresponding corrective action required to prevent odor problems. See attached.
5. Table Section: Table 4 Summary of Biofilter Emissions: Where did biofilter exhaust data and removal efficiency come from? How were EFs developed - provide examples.

H₂S Scrubber: See attachment D

1. H₂S scrubber/skid is mentioned here and there throughout permit (see pgs 3 (SO₂ after control = 20 ppm), 12 and process flow diagram) but H₂S scrubber is not listed as an emission source control in the permit application. Please clarify and provide scrubber design information and other pertinent information.
2. What is approximate H₂S concentration in digester gas? What is this based on?
3. Where did 20 ppmv TRS data for H₂S Scrubber outlet come from?

Engine: See attachment E

1. Please provide Page 2 of Gas Engine Technical Data Sheet (TDS).
2. Does the generator have any control equipment, i.e. catalytic converter, filters, etc. Computer control of fuel/air ratios.
3. What maintenance/monitoring is required to maintain manufacturer's emission rate guarantee? CH to provide.
4. Are the emission rates listed in TDS for digester gas or natural gas? Digester
5. Does biogas need any pretreatment/cleaning prior to combusting in engine? Yes, H₂S
6. Page 3 of Application, Para 2: How did you determine combustion rate of 500 scfm of biogas operating at 75% load. I get approx 314 scfm (@75% Load: (6753 BTU/bhp-hr * 1675 bhp)/ 600 BTU/scf * 60 min/hr) = 314.2 scfm). See attached.

7. Must use worst case for PTE unless the facility accepts a restriction on use. For example, at 75% load PTE CO = 69 tpy and for 100% load PTE CO = 89 tpy. So, need to use 100% load to determine PTE.

Back-up Flare: See attachment E

1. Will back up flare be enclosed? If so, what will be minimum residence time and temperature? [shrouded semi-enclosed flare](#)
2. What is maximum gas input rate (scfm) for flare and heat input (mmBTU/hr)? [See attached.](#)
3. Will pilot be lit at all times? [No, electronic starter.](#)
4. Will natural gas be available to maintain pilot? [Not applicable](#)
5. Section 2.2.1.2 Backup Flare, Page 4: Used EF's for industrial flare (AP-42- Section 13.5). Why didn't you use AP-42 Section 2.4, Table 2.4-5 CO = (750 #CO/MMdscf methane)/600 BTU/scf) = 1.25 lb CO/mmBTU and NOx = (40 lb NOx/MMdscf/ 600 BTU/scf) = 0.067 lb NOx/mmBTU. (Application shows 0.37 lb CO/MMBTU and 0.068 lb NOx/MMBTU). [See attached.](#)

Note: Using EF = 0.37 lb CO /MMBTU get PTE 29.2 tpy CO. Using EF = 1.25 lb CO/MMBTU get 99 tpy CO. Since the Back-up Flares will be used infrequently CO emissions from the flare should not be a problem, but should not use industrial flare EF's.

Air Emissions:

1. Need to conduct air quality analysis for H2S (based on odor threshold) and other contaminants such as ammonia, if necessary. Note: H2S odor detection threshold is 0.0005 ppm and recognition threshold is 0.0047 ppm. [These facilities are minor emissions units and modeling has not been performed.](#)

Spills: See attachment F

1. Will Quasar have straw bales onsite for containment of spill and immediate access to vacuum truck for cleanup of spill? [See attached spill plan.](#)

From July 30, 2012 letter:

1. Since biosolids (sewage sludge) is included in the feedstock, each source of biosolids must be included in the application, along with the quality data in accordance with 360-4.4(a). [Upon further discussion with DEC and internally we plan to start-up these facilities as foodwaste, FOG \(fat, oil, grease\), and other organic feedstock facilities. As we develop contracts with biosolids generators we will approach DEC to make required permit changes. SEQR applications include biosolids and will not be changed at this time.](#)

2. Although each individual source of food waste or other organics (other than biosolids) does not need to be identified, a general description of the waste sources (a certain grocery chain, a certain food processor, etc.) should be included in the permits application along with an estimate of the quantity of waste that will be derived from that source. Further clarification from DEC is required to define if general categories of foodwaste, FOG, and other organic feedstocks can be pre-approved as part of the permitting process. We plan to accept vegetable and animal based organic feedstocks.
3. The application indicates that the system will produce 30,000- 35,000 gallons/day for land application with little detail. If the digested material contains any sewage sludge, the land application of the material will require a permit under Subpart 360-4. If the biosolids does not meet Class B prior to entering the digester, the Quasar digester must demonstrate compliance with the Class B and vector attraction reduction criteria prior to land application. This material cannot go to a farm from the digester until the Subpart 360-4 permit(s) is issued. See response to 1 above regarding sewage sludge (biosolids). Feedstocks processed through our anaerobic digestion facilities will reduce volatile solids by at least 38% (Van Kleeck equation) and will contain $\leq 2,000,000$ MPN/gram fecal coliform (geometric mean of 7 samples).

If the digestate is only derived from non-sanitary wastes, it can be land applied on a farm provided it is included in the Comprehensive Nutrient Management Plan for a Concentrated Animal Feeding Operations (CAFO) farm. If it will not be land applied at a CAFO farm, Quasar must describe how they will insure the appropriate application rates and practices are followed on the farm. The application does not mention any dewatering of the digestate and other uses, so we assume it will go to farms, but this should be clarified in the permit application. This is liquid effluent from anaerobic digestion. See example CNMP attached. A sludge management plan is attached to provide details on agronomic land application practices that will be used for all effluent management. See attachment G

4. The application also mentions an alternative off-site storage facility, but no detail is provided. The application must include a description of the off-site storage facility for the residual liquid, such as the capacity and location, if this alternative is considered. An on-site lagoon is being considered for Niagara BioEnergy (upon review of DEC standards provided by Efrat Forgette on August 2, 2012). An off-site lagoon is being considered for Buffalo BioEnergy. Details will be provided once a site is identified.
5. Section 2.4 of the application mentions PCBs. Analyses for PCBs is not required. We will follow 40 CFR 503 with the 50 mg/kg PCB limit for biosolids, if/when accepted.
6. The application only mentions the digestion time of 20 to 30 days. Other information on the digester, such as operating temperature range of the digester and anticipated volatile solid reduction should be included. Also, the application should include a description of how an acceptable mix in the digester will be determined. The digesters are operated at Mesophilic temperature of 100° F. Minimum volatile solids reduction is 38% (Van Kleeck equation). The acceptable mix follows the quasar's biomass acceptance protocol. Refer to attachment.

7. The application does not include a description of the testing of the digestate. A sampling plan should be included frequency and parameters. **See attachment H** Below is a sampling plan taken from the site SOP.

A) Sampling of Effluent and Feedstock

- 1) Change the effluent/feedstock valve to OPEN (Green on control panel).
- 2) Turn on recirculation pump and allow to run for 5 minutes.
- 3) Discharge at least 2 gallons of effluent/feedstock from sampling pipe to remove any residual effluent/feedstock.
- 4) Obtain a sample bottle which can contain at least 100 ml of sample, and label with the facility, sample name and the date the sample was taken. [Example: Zanesville Feedstock 01/01/12]
- 5) Fill sample bottle to a maximum of $\frac{3}{4}$ of the container.

B) Site Testing Parameters and Frequency

Site operators shall perform testing at frequency described in Table 1 according to methods described in Section 1.4.

Table 1. Site Testing

Test	Digester Effluent (Primary and Dual Purpose)	Feedstock/Biomass Sample
Chemical Oxygen Demand (COD)	MWF	MWF
pH	MWF	M
Volatile fatty acids (VFA)	MWF	N/A
Total Inorganic Carbon (TIC)	MWF	N/A
VFA/TIC	MWF	N/A

MWF: Monday, Wednesday and Friday; N/A: Not applicable

Quasar Lab/External Lab Testing Parameters and Frequency

Site operator shall collect sample from biomass/feedstock tank and primary and dual purpose tank according to procedure stated in section 1.1. Samples collected must be stored in fridge prior to shipping/pick-up. Samples for quasar lab should be sent out using overnight services (call lab for FedEx shipping instruction) in cooler box with ice-pack or ice-bottles and Chain of Custody (COC) filled to the following address:

Quasar Lab
2705 Selby Rd.
Wooster, OH, 44691

Table 2. External lab (Precision Analytical as of August 2012)

Site	Sampling Source	Primary Digester/Dual Purpose Digester	Testing Parameters
Buckeye Biogas(BBG)	Primary digester	- Monthly. Sampling should be done on the same day the samples will be picked up by Precision Analytical. - Total of 7 fresh samples (collected on day of pick-up, for fecal coliform) and 6 daily samples (collected from different day) are required. - Fecal coliform samples must be to lab within 6 hours of collection. - Use bottles provided by Precision Analytical. - Label and store in fridge.	- Fecal Coliforms - BOD - COD - 503 Heavy Metals (As, Cd, Hg, Zn, Mo, Ni, Cu, Pb and Se) - pH - TKN - Ammonia - Oil and grease - Total solids - Volatile solids - Phosphorus - Potassium
Zanesville	Primary digester		
Central Ohio BioEnergy (COBE)	Dual purpose tank		
Haviland	Primary digester		
Collinwood	Dual purpose tank		
French Creek	Dual purpose tank		
Carroll Lagoon (for COBE only)	Mixed sludge from Carroll Lagoon		

- Each of the proposed project sites is located in an archeologically sensitive area. Please complete and submit a Structural Archeological Assessment Form for each proposed project site. Two blank forms have been enclosed for your convenience. This issue has been addressed through SEQR. **See attachment I**

9. Approximately 100% percent of each proposed project site is located on hydric or partially hydric soils. The project sponsor should contact the United States Department of the Army, Corps of Engineers' (COE) Buffalo District Office, telephone: 716/879-4330, concerning COE regulatory jurisdiction to ensure that the project will not involve federally regulated wetlands or any other approval from that agency. If Federal Wetlands are involved, the COE may require Water Quality Certification from DEC. The Niagara BioEnergy site was previously delineated with USACE concurrence. Construction activities were commenced at the site within the required 5 year timeframe and further delineation is not required. Details are attached. We will discuss the Buffalo BioEnergy site with USACE. **See attachment J**

10. Please be aware that the underground receiving tank and the feedstock holding tank may require a registration from the Department's Petroleum or Chemical Bulk Storage Programs if they contain more than 1% petroleum or more than 1% of any hazardous substance listed in 6 NYCRR Part 597: List of Hazardous Substances. 6 NYCRR Part 597 can be obtained on the Department's website at: <http://www.dec.ny.gov/regs/4449.html> . You may also contact Andrea Skalski at 716/851-7220 for additional information on Bulk Storage requirements. These tanks will not contain petroleum or hazardous substances.

11. Also, please note that these permit applications will remain incomplete until the State Environmental Quality Review (SEQR) process has been conducted for each facility. Each town hosting a proposed facility has begun coordinating the SEQR process with the Department. The SEQR process has completed with both projects.

Additional information:

<http://extapex.epa.state.oh.us/epaxp/f?p=840:10:1542267826442861>

The above link will take to the Ohio EPA website for air permits. You'll need to know the counties for each project which are as follows:

Project	County
Buckeye Biogas	Wayne
Central Ohio BioEnergy (AKA Schmack BioMass)	Franklin
Zanesville Energy	Muskingum
French Creek BioEnergy	Lorain
Collinwood BioEnergy	Cuyahoga
Northwest BioEnergy	Lucas
Haviland Energy	Paulding
Lime Lake Energy	Summit

General air permit for anaerobic digestion is found at:
http://www.epa.ohio.gov/dapc/genpermit/digester_gp13.aspx . The above facilities were permitted before the general rule became effective.

Information on assigned codes:

PERMITTED FACILITIES	Collinwood BioEnergy - Cleveland	Zanesville Energy - SEDO OEPA DAPC	French Creek BioEnergy - NEDO OEPA DAPC	Buckeye Biogas - NEDO OEPA DAPC	Schmack BioMass - CDO OEPA DAPC	City of Akron - ARAQMD
NAICS	562219	2362220	562219	562219	325311	447190
SIC	1542/4925	1542	1542/4925	1542/4925	1542	

Zanesville Energy (OEPA ID 0660015007) NAICS code: 236220 Commercial and Institutional Building Construction

Schmack Biomass (OEPA ID 0125044001) NAICS code: 325311 Nitrogenous Fertilizer Manufacturing

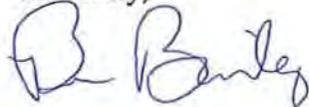
Buckeye Biogas (OEPA ID 0285032003) NAICS Code: 562219 Other Nonhazardous Waste Treatment and Disposal

City of Akron WPC Composting Facility (OEPA ID 16770110255) NAICS code: 447190 Other Gasoline Stations

Additional detailed information on air emissions issues will follow to Marcia Ladiana.

Please contact me with any questions or concerns.

Sincerely,



Bruce Bailey

cc: Alan Johnson, quasar project engineer

Owen Karickhoff, CRA

Attachment A
Biomass Waste Survey

Biomass Leads from Frontier Fire Department

Thursday, February 02, 2012

6:56 AM

Decamelo baking

Up State dairy

Federal meat

Wegmans

Topps

Lakawanka - slaughter house

Will Poultry - processing

Salenas - hotdogs

General Mills - cherrios / lucky charms

Rich Products

Tyson - Buffalo

Perrys Ice Cream

Hoovers - Akron NY

Caledonia Haulers

Schneiders Seafood

Tonawonda GM Engine Plant

Tyson

Guard Contracting, National Vacuum, Zoladz and Hazmat are the transportation companies. Below is the information about each company. Mark mentioned to me that transportation will be an issue when we will start so I tried to contact few transportation companies and most of them dispose the waste to landfills. I think, after establishing business we can route those waste to our company instead of landfills.

Guard Contracting @ 716-875-1209

- Transportation company
- Open roll of dumpsters
- Dispose their waste to waste management
- Deals with C & D disposal

National Vaccumm @ 866-773-1167

- Transportation company
- Haul grease trap, septic
- Provide service to most of Niagara falls' companies
- We can use them for the transportation in future and they can be our customer to dispose the waste they clean

Zoladz Transportation co. @ 716-863-1755

- Haul Septic tank and food waste
- They do not have vacuum truck so do not haul grease trap
- Dispose it to landfills and waste management inc.
- They charge \$85-95/hour for trailers. They own trailers and trucks. If in future we need any transportation service we can contact them.
- This company hauls sludge from NFWB (NFWB is Niagara Falls Water Board and they are interested in doing business with us.)

Below are other companies with details who showed interested in knowing our company

Mahar Septic

- Cleans septic tanks
- No grease trap
- Dispose to sewage plant
- Not sure about volume and price

J. H. Dodman @ 716-854-3286

- Meat broker/Meat wholesaler
- Disposal volume: ~200 lb/per week
- Disposal price: \$50/100lb
- No contract

Westfield WWTP @ 716-326-3932

Andrew Thompson, Superintendent

- Sludge: about 300-400 tons per month of dewatered sludge. 20-25% solid
- Mostly produce dry powder
- Disposal: Landfills
- Transportation: Hire private haulers
- Price: Not sure of price per ton. Approx. \$90,000/year in hauling and tipping fees. \$155/container (approx. 16 tons) in hauling fee + tipping fee at landfill.
- No contract signed.

Silver Creek treatment @ 716-934-4676

Herm, Chief Operator

- Hauls out liquid waste
- Dispose to Westfield WWTP
- Disposal Price: \$0.17/gal

Hanover S#1 WWTP @ 716-934-2231

Harold Anger, Superintendent

- Solid waste
- Usually in dry form. Dry out by spreading on sandbed
- Dispose to landfills
- Volume 86 tons/year = ~1.72 KGal/mon
- Disposal price: \$27.58/ton

Sherman WWTP

James Irwin

- Mostly liquid waste
- Volume: 0.06MGD
- Dispose to landfills
- Disposal price: \$35/ton

Drain Doctor @ 716-285-6383

Stefanie or John Brundage, owner

- Septic and Grease trap cleaning company
- Clean grease trap 600,000gallon/year
- Dispose to Buffalo sewer @ \$0.11/gallon
- Would be interested if we offer better pricing than buffalo sewer
- <http://draindoctor.ws/index.htm>

-

Alden WWTP @ 716-937-7392

Sue Lorenzi, Secretary & Keith, Superintendent

- Usually dispose every year or two
- Last disposed in Dec2011 -> 133.94tons, before that it was disposed in Nov2009 - > 172.21tons
- Mostly dispose to Allied Waste Management and the allied company offers transportation

Royalton Waste water Dept @ 716-772-2107

- Accept sanitary and sewer waste
- Very small facility
- Under no contract but modern disposal hauls and dispose to landfills for them every twice a year
- Disposal price: \$50/ton

Warsaw Sanitation & Excav. @ 585-786-2739

- Cleans only septic tanks
- Rent tankers
- In winter, dispose to sewage treatment plant and in summer, spreads out on land
- Cleans ~100,000 gallon a week
- About disposal price, the lady mentioned that it is very expensive almost \$180-200/tank. (I am not sure what does this mean)

Below is a meeting report when Mark visited to Buffalo in May.

Meeting report

- **Niagara Falls water board (NFWB)**
 - Deals with waste water treatment sludge.
 - Disposal price = \$43.88/ton including transportation cost.
 - Under an annual contract, Expires end of the year around Nov - Jan.
 - 11,000 tons annually; Solid - 30-35%
 - sludge cake pH = range of 12-13; treats with lime as one of the requirement from landfills of pH=13
 - 7 feet of carbon bed
 - Chemicals are used to thicken the sludge. Use belt press method to dewater the sludge and the water is treated with sodium hypochlorite to control odor

- **Village of Westfield WWTP**
 - Deals with Municipal waste water, grape processing and winery water.
 - ~150 tons per month of dewatered sludge; solid = 20-25%
 - Disposal price - approx. \$90,000 per year in hauling & tipping fee
 - Private haulers are hired to haul the solid waste to landfills. Distant to landfill is around 20-25 miles from the plant
 - Increase in sludge between Sept – Oct,
 - Use pressed plates method to dewater the sludge
 - 25 yard roll off

Also, I called DEC dept of New York state and I got chance to speak with Gary Feinland. He organizes many seminars with universities, colleges, restaurants, WWTPs to get the information about solid waste, he is knowledgeable about the material and he can be proved helpful in introducing our company.

Gary Feinland from DEC @ 518-402-8627

- Desperately interested in starting organic facility in NY

- Government is very interested in recycling solid waste rather than disposing to landfills. Government is not going to ban disposing solid waste but there are chances of banning that route in near future
- About partner, there is no history of partnering DEC with any company but he would be really interested in introducing our company and would help in forwarding the solid waste to our company.
- Most important,
He personally thinks, buffalo is not a good location to build anaerobic digester because the potential to get solid waste is low with low dispensing cost and high operational cost
He recommends Hudson valley region of NY would be the best region in NY as the companies in that region are very much interested in recycling their solid waste compare to buffalo region and it would be beneficial economic wise too.

One very positive development in NYS is funding from NYSERDA for anaerobic digesters. Here is a link to a newspaper article stating that new facilities can receive up to \$1 million from NYSERDA.

http://thedailynewsonline.com/news/article_b77cf2c8-940c-11e1-95f5-0019bb2963f4.html

We certainly need more organics recycling capacity in NYS. Here is a link to our Beyond Waste plan: <http://www.dec.ny.gov/chemical/41831.html>

Attachment B

**Example Operations and
Maintenance Agreement**

**RENEWABLE ENERGY PROJECT
OPERATIONS AND MAINTENANCE AGREEMENT**

This Renewable Energy Project Operations and Maintenance Agreement ("Agreement"), is made as of this 31st day of January, 2012 (the "Effective Date"), by and between quasar energy group, llc with offices located at 7624 Riverview Road, Independence, Ohio 44131 ("Contractor") and Collinwood BioEnergy, LLC, an Ohio limited liability company, with offices at 50 Public Square, Suite 1060, Cleveland, Ohio 44113 ("Owner"), (collectively the "Parties").

WHEREAS, Owner will own an anaerobic digestion system ("ADS") which accepts organic feedstock and generates renewable energy, which will be located at 13550 Aspinwall Avenue Cleveland, Ohio 44110 ("Facility"); and

WHEREAS, Contractor has experience in managing, operating and maintaining ADS projects similar to this Facility, including feed stock procurement and certain administrative aspects relating to recordkeeping and regulatory compliance; and

WHEREAS, Owner and Contractor desire that Contractor shall provide for Owner the operation, maintenance, management, and certain administrative services relating to the Facility described herein; and

WHEREAS, the Contractor will secure organic feedstock materials for the Facility to produce renewable energy and other valuable products and services; and

NOW, THEREFORE, in consideration of the mutual covenants contained herein and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, Contractor and Owner agree as follows:

1. DEFINITIONS

- a. "Gen-Set" means the engine, the generator and all related parts and equipment to be located at the Facility.
- b. "Major Maintenance" and "Major Repairs" means significant maintenance and repair activities for equipment or systems which Contractor cannot perform with its own personnel.
- c. "Applicable Requirements" means all Tasks Duties and Requirements as described in Section 5, all Operational Practices as described in Section 6, all Record Keeping and Reporting as described in Section 7, all Financial and Budgeting described in Section 8.
- d. "Authority Requirements" means all local, state, and federal laws, regulations, rules, licenses, certificates, orders, and permits and approvals relating to the operation of the Facility.
- e. "Start Commissioning Date" is defined as the date when: (i) the Facility is electrically interconnected to the grid, (ii) has accepted a full tanker truck

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(approx. 6000 gallons) of organic feedstock, and (iii) upon Owner's receipt of "placed-in service letter" from a third party engineering firm.

- f. "Feedstock" means source-separated organic materials from commercial and industrial sources, including biosolids from wastewater treatment plants.
- g. "Effluent" means liquid and solid byproduct removed from any tank from the Facility.
- h. "Prohibited Feedstock" means any Feedstock the Facility is prohibited from taking by any Authority Requirement.
- i. "Unacceptable Material" or "Unacceptable Feedstock" means material that is not Prohibited Feedstock but is Feedstock that the ADS cannot process. This includes, but is not limited to, plastic, Styrofoam, glass, metal, paper, cardboard, wood, cans, straps, ropes, cords, wires, bottles or any other material in quantities that would impact the Facility's ability to operate as designed.
- j. "Healthy Digester" is an ADS performance measurement that means the system is producing at or above the Minimum ADS Performance Level at least 20 consecutive days in any 30 day period.
- k. "Minimum ADS Performance Level" means the ADS is producing the minimum Total Marketable Electric Energy (E) kWh/Day as defined in the Plant Parameters Sheet Attached in Exhibit E.
- l. "Net Operating Income" ("NOI") means the gross income from the Facility after operating expenses and reserves are deducted, but before income taxes and principal, depreciation, amortization and interest are deducted.
- m. "Design ADS Performance Level" means the ADS is producing the design case total electric generator potential (EP) kWh/Day as defined in the Plant Parameters Sheet Attached in Exhibit E
- n. "Pass-Through Expense(s)" means those expenses as defined in Exhibit A-1
- o. "Unusual Occurrence" means fires, leaks, explosions, the breakdown of any equipment located in the Facility or any other significant disruption to the Facility as well as any safety violation or accident.
- p. "Affiliate" means (i) any officer, director, manager, member, trustee, partner, employee or holder of ten percent (10%) or more of any class of the voting interests of or equity interests in such party; or (ii) any corporation, limited liability company, partnership, trust or other entity that is a parent or subsidiary entity of, or is controlling, controlled by or under common control with, such party.

2. EFFECTIVE DATE AND TERM

2.1 The term of this Agreement shall commence on the Effective Date and expire on the tenth anniversary of the Start Commissioning Date thereof (the "Term"), unless terminated earlier as set forth herein. The Term may be extended upon mutually agreeable terms and conditions by the parties.

3. PAYMENT FOR SERVICES

3.1 Payments Generally. Beginning with Start Commissioning Date, prorated to the number of days remaining in the month, and thereafter for each month during the term during which the Contractor provides Services, as defined herein, with respect to the Facility, Contractor shall be paid the fees defined herein. The payments described in this section shall constitute Contractor's full compensation for all Services described in this Agreement, and no other payment shall be due Contractor for the Services under the Agreement.

3.2 Base Fee.

a. Contractor shall be paid for provision of Services with respect to the Facility as follows (the "Base Fee"):

- i. For providing the Services with respect to the Facility, Owner shall pay Contractor a monthly Base Fee of twenty-five thousand dollars (\$25,000.00) as provided herein.
- ii. The Base Fee shall be adjusted annually in an amount equal to the Consumer Price Index for all urban consumers, published by the United States Department of Labor, Bureau of Labor Statistics for U.S. City Average, All Items (1982-1984=100) or any successor index thereto.
- iii. In the event that there are any changes in laws or regulations relating to the operation of the facility which directly increase Contractor's cost in performing the Services and which are not treated as Pass Through Expenses, Contractor shall be entitled to request an increase in its fee to offset such increased costs.

b. On or before the tenth (10th) day of each calendar month after the Start Commissioning Date during the Term, Owner shall pay Contractor the Base Fee due and owing under this Section 3.2 for the previous calendar month.

3.3 Payment for Pass Through Expenses. Contractor will arrange for performance of and payment of all Pass Through Expenses as defined in Exhibit A-1 ("Pass Through Expenses"). Contractor will make payment for all such Pass Through Expenses out of a bank account established by Owner for which Contractor will have depository and signatory authority. In the event that there are not sufficient funds in Owner's bank account to pay the

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Pass Through Expenses, Owner shall deposit sufficient funds for such purposes upon written request of Contractor.

- a. Pass Through Expenses that are incurred prior to Commencement Date and which are paid by Contractor shall not be subject to markup by Contractor but shall be reimbursed by Owner within thirty (30) days of Contractor's submission of a payment request with detailed invoice and paid receipts attached.

3.4 Performance Fee. In addition to the Base Fee, Contractor shall be entitled to an annual Performance Fee. The Performance Fee shall be equal to twenty five percent (25%) of the amount by which actual NOI for the Facility exceeds one hundred percent (100%) of budgeted NOI for each year during the term hereof. Within ninety (90) days after the end of Owner's fiscal year, Owner shall prepare financial statements demonstrating Owner's actual NOI resulting from the operation of the Facility and shall pay to Contractor the Performance Fee (if earned).

4. SERVICES

4.1 The term "Services" as used in this Agreement shall include:

- a. Feedstock Services. Contractor will secure Feedstock from third-parties for the Facility; bill and collect payment for accepting feedstock at the Facility; and endeavor to place under long-term contract Feedstock streams from third-parties. The cost of such activities are included in the Base Fee;
- b. Facility Operations Services. Contractor will perform all Tasks, Duties and Responsibilities as described in Section 5 in compliance with all Applicable Requirements, Authority Requirements, Manuals Procedures and Plans. The cost of such activities are included in the Base Fee;
- c. Commissioning Services. Contractor shall provide assistance to Owner and the EPC Contractor during the Commissioning Period. Contractor shall secure seed sludge from another facility managed by the contractor. The cost of transporting such sludge will be a Pass Through Expense, and all other costs for such activities are included in the Base Fee ;
- d. Administrative Services. Contractor shall provide all administrative services, record keeping and reporting relating to the operation of the Facility. The cost of such activities are included in the Base Fee;
- e. Compliance Services. Contractor shall operate the system in a manner to ensure that the Facility is in compliance with Authority Requirements. Contractor shall make all application/renewals and/or assist the Owner in obtaining all permits; The third-party fees for permits will be Pass Through Expenses, and the cost of all other Compliance Services activities are included in the Base Fee;

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- f. Public Relations Services. Contractor will work with Owner on developing and implementing a public relations plan for the Facility, and assist with Facility tours upon request by Owner. The cost of such activities are included in the Base Fee;
- g. Feedstock Report. Within thirty (30) days following the end of each calendar quarter during the term of this Agreement, Contractor shall provide to Owner a written Feedstock Report, including a list of all potential customers that Contractor has provided quotes to, the amount of such quotes. The cost of preparing the Feedstock Report is included in the Base Fee;
- h. Accrual and Major Maintenance Services. Contractor will recommend an accrual schedule and will supervise and manage all major maintenance, repair, and/or replacement tasks listed on Exhibit B. Preparation of the Accrual schedule and coordination of Major Maintenance Services are included in the Base Fee. Contractor will recommend the purchase or lease of any new or replacement equipment, parts or similar items. Upon authorization from Owner, Contractor shall coordinate, procure, install, commission, and maintain new and replacement parts and equipment. The costs and expenses for such parts, equipment and the services unable to be provided by Contractor and required to install, repair or modify the parts and equipment shall be a Pass Through Expense;
- i. Banking Services. Contractor shall secure payment of all amounts due to Owner with respect to the operation of the Facility, including, but not limited to, Feedstock payments, payment for electricity exported and any other source of revenue or income to Owner and shall deposit such amounts in a bank account set up and established by Owner at Bank of America. Contractor shall make payment of all Pass Through Expenses out of such bank account and shall provide a report to Owner monthly of all amounts received in and paid out of such bank account.
- j. Effluent Management Services. Contractor shall coordinate the storage, handling and disposal of all Effluent. The cost of providing such services is included in the Base Fee. Any effluent disposal contract shall be subject to Owner's prior written approval. The cost of any effluent disposal contract will be a Pass Through Expense;
- k. Unacceptable Materials Services. Contractor will coordinate the handling, storage and disposal in accordance with Applicable Requirements and Authority Requirements of Unacceptable Materials. The cost of such activities are included in the Base Fee;
- l. Applicable Requirements and Authority Requirements Services. Contractor will operate the plant in accordance with the Applicable Requirements and Authority Requirements and all other terms and provisions of this Agreement.

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The costs associated with maintaining compliance with Applicable Requirements and Authority Requirements are included in the Base Fee.

- m. Grounds Maintenance. Contractor shall be responsible for the orderly maintenance and repair of the grounds on which the Facility is located, including, but not limited to, regular landscaping, maintenance, mowing and snow removal. Contractor shall be permitted to engage vendors to provide such services, provided that the vendor is included on the Parties' list of pre-approved subcontractors. The cost of these contracts shall be a Pass Through Expense. Contractor's costs and expense in managing these services are included in the Base Fee.
- n. Odor Control. Contractor will operate the facility in accordance with an Owner approved odor control plan. The plan will at a minimum require the utilization of a properly maintained biofilter in conjunction with Feedstock and Effluent transfer processes. The costs associated with such services are included in the Base Fee. An Odor Control Study is incorporated herein in Exhibit G.
- o. Electrical Generation Services. Contractor will manage the Gen-Set, including the operation, maintenance and repair of Gen-Set, the interconnection to the grid, the production of electricity to the Design ADS Performance Level, track the generation of renewable energy certificates and other energy incentives on behalf of Owner. Gen-Set maintenance activities include but are not limited to the coordination of the subcontracting of Gen-Set maintenance. The costs associated with such services are included in the Base Fee. The costs for the Gen-Set maintenance, repair and replacement subcontract will be a Pass Through Expense.
- p. Tools Services. Contractor shall be responsible for furnishing and maintaining all non-specialty hand tools. The cost of such tools is included in the Base Fee;
- q. Monitoring Services. The Contractor shall maintain the software for the remote SCADA system that is capable of controlling the facility controls. The systems shall send alerts to the Contractor of abnormal ADS conditions. The Contractor shall maintain video surveillance of the premises. The cost of such activities are included in the Base Fee;
- r. Safety Services. Contractor shall comply with all applicable local, state, and federal laws, regulations, rules, licenses, certificates, orders, and permits and approvals relating to safety. The cost of such activities are included in the Base Fee;
- s. Anaerobic Digestion Services. Contractor shall provide monitoring, testing, maintenance, and corrective actions such that the Contractor endeavors to

meet or exceed Healthy Digester performance levels. Third-party vendor services, expenses for parts associated with Major Repairs, and the cost of seed sludge transportation, except when tied to an Unusual Occurrence where the Owner determines the Contractor is at fault, shall be Pass Through Expenses; and all other costs associated with Anaerobic Digestions Services are include in the Base Fee.

1. Maintenance and Repair Services. Contractor shall perform regular preventative maintenance services and minor repairs for the Facility and all components thereof as described in this agreement. Contractor shall recommend, schedule and oversee work of outside vendors providing technical services, repairs, or maintenance for Major Maintenance and Repair. Third party vendor services and expenses for parts for Major Maintenance or Major Repairs, except when tied to an Unusual Occurrence where the Contractor is at fault, shall be Pass Through Expenses; and all other costs associated with Maintenance and Repair Services are include in the Base Fee.

4.2 Subcontracting. Contractor may subcontract with a third party to perform any of the Services required under this Agreement provided that the vendor is included on the Parties' list of pre-approved subcontractors as specified in Exhibit F hereto. Exhibit F may be modified, amended or supplemented at any time with the express written consent of Owner and Contractor. Prior to engaging any subcontractor that is related to or an affiliate of Contractor, Contractor shall disclose to Owner the relationship between Contractor and the proposed vendor or equipment supplier and Contractor shall certify to Owner that it has obtained competitive quotes for the same services from other unrelated vendors and that the cost for such services charged by the Affiliate of Contractor is competitive with market rates for such services.

4.3 Access to Facility. Owner shall provide Contractor with unrestricted access to the Facility. Contractor agrees to abide by all reasonable security and safety policies implemented by Owner for the Facility.

4.4 Contractor's Duties to Owner. Contractor shall perform the Services consistent with applicable professional practices and standards in the industry for performing similar services. Contractor shall have a duty of reasonable care, disclosure and loyalty to Owner in connection with the Services.

5. TASKS, DUTIES AND RESPONSIBILITIES

5.1 Contractor shall provide employees to operate the Facility as provided herein.

- a. Contractor shall, during all hours of operation, provide an operating staff employed by the Contractor (or with Owner's written consent under contract with the Contractor) that is qualified and competent to carry out the Services and to otherwise ensure compliance with all codes and regulations.

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- b. Facility personnel, as relevant to their job duties and responsibilities, shall be familiar with the relevant components of the Facility and the relevant procedures contained within the operating plan.
 - c. Contractor will ensure the Facility is staffed with a Qualified Operator who will be able to carry out the Services.
- 5.2 Contractor shall recommend, pre-qualify, schedule and oversee the work of outside vendors providing maintenance or technical services to Owner within the scope of this Agreement, subject in each case to timely prior written approval by Owner. Contractor shall provide reasonable commercial efforts to identify qualified vendors for such specific services, with the approval of the Owner.
- 5.3 Contractor shall ensure adequate vehicle accommodation and take reasonable steps to notify and remind persons delivering Feedstock to the Facility that vehicles shall not park or queue on public streets or roads except under emergency conditions or as allowed by local traffic ordinances.
- 5.4 Management of Feedstock Shipments
- a. Contractor shall be responsible for identifying and locating potential sources of Feedstock for the Facility. Contractor shall perform all necessary due diligence with respect to the quality and quantity of the Feedstock and shall recommend to Owner pricing and contract terms for any such Feedstock.
 - b. Contractor shall manage Feedstock logistics in such a way so as to maintain a Healthy Digester feedstock recipe and endeavor to maintain the facility at the Design ADS Performance Level while maximizing revenue with the objective to meet the operating budget.
 - c. Contractor shall only accept Feedstock complying with the quality standards shown in Exhibit D or as otherwise agreed to by Owner in writing.
 - d. Contractor shall receive, manage, process, store, reload and transfer all Feedstock in accordance with the Record Keeping and Reporting requirements.
 - e. Contractor shall reject Prohibited Feedstock and Unacceptable Feedstock upon discovery and shall properly manage and dispose of Prohibited Feedstock and Unacceptable Feedstock as soon as it is identified. All such Feedstock shall be promptly removed from the site and transported to an appropriate destination.
 - f. Contractor shall implement a load-checking program to prevent the acceptance of Feedstock that is prohibited by the Facility. This program will

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include at a minimum a Qualified Operator that will inspect manifests and sample and analyze incoming loads with the objective of preventing the acceptance of Unacceptable and Prohibited Feedstock.

5.5 Management of Effluent

- a. Contractor shall manage all Effluent in accordance with the Facility design plans and the operating plan submitted to and approved by the Owner.
- b. Contractor will use its best efforts to identify potential users of Effluent for horticultural, agricultural, landscape and nursery operations for use as a fertilizer or agricultural supplement.

6. OPERATIONAL PRACTICES

6.1 General Operations.

- a. Facility Receiving Hours. Unless otherwise required or agreed to by the parties, the Facility's gates will be open will be from 7:00 a.m. to 6:00 p.m. each Monday through Friday and from 8:00 a.m. to 3:00 p.m. each Saturday. Contractor can request a change in operating hours based on season and feedstock which request Owner will not unreasonably deny.
- b. Continuous Operations. Contractor shall operate the Facility continuously and uninterrupted, except when the Contractor is prevented from doing so by any event of Force Majeure, Unusual Occurrences or scheduled maintenance requiring a temporary shutdown of the Facility.

6.2 Vehicle Turnaround.

- a. Contractor will make best efforts to schedule vehicles to minimize queuing and turnaround to exit the Facility.

6.3 Storage and stockpiles

- a. Outdoor storage of Feedstock or Effluent is prohibited

6.4 Dust, airborne debris and litter

- a. Contractor shall operate the Facility in a manner that minimizes and mitigates the generation of dust, airborne debris and litter, and shall prevent its migration beyond property boundaries.

6.5 Odor

- a. Contractor shall at all times operate the Facility in a manner that minimizes the generation of odors that are detectable off-site. Detectable off-site odors

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will be evaluated based on, but not limited to, the following properties: intensity, character, frequency, and duration. An Odor Control Study is incorporated herein in Exhibit G

- b. Contractor shall operate, maintain and utilize a properly functioning and maintained biofilter on air vented from the receiving tank.

6.6 Stormwater Management

- a. Contractor shall operate the Facility consistent with an approved stormwater management plan.

6.7 Access control

- a. Contractor shall maintain secure gates or other suitable barriers at potential vehicular access points to prevent unauthorized access to the site when an attendant is not on duty.

6.8 Signage

- a. Contractor shall post signs at all public entrances to the Facility, and in conformity with local government signage regulations. These signs shall be easily and readily visible, and legible from off-site during all hours and shall contain at least the following information:
 - i. Name of the Facility;
 - ii. Address of the Facility;
 - iii. Emergency telephone number for the Facility;
 - iv. Facility Receiving Hours;
 - v. Directions not to queue on public roadways.

6.9 Nuisance complaints

- a. Contractor shall respond to all nuisance complaints in a timely manner (including, but not limited to odors and traffic), and shall keep a record of such complaints and any action taken to respond to the complaints, including actions to remedy the conditions that caused the complaint.
- b. If the Facility receives a complaint, Contractor shall:
 - i. Attempt to respond to that complaint within a timely manner; and

- ii. Log all such complaints. Each log entry shall be retained for three years and shall be available for inspection by the Owner. Each log entry shall include:
 - A. The nature of the complaint;
 - B. The date the complaint was received;
 - C. The name, address and telephone number of the person or persons making the complaint; and
 - D. Any actions taken by the operator in response to the complaint (whether successful or unsuccessful).
- iii. Contractor shall make records of such information available to the Owner upon request. Contractor shall include such information in the Monthly Report.

6.10 Good Neighbor Practices

- a. Contractor shall practice good housekeeping practices, good environmental practices and abide by appropriate risk management procedures, and work to minimize noise.

6.11 Unusual Occurrences.

- a. Contractor shall keep and maintain accurate records of any Unusual Occurrences encountered during operation, and methods used to resolve problems arising from these events, including details of all incidents that required implementing emergency procedures.
- b. If an Unusual Occurrence occurs which could impact the ability of the Facility to remain in compliance with Applicable Requirements, or create off-site impacts, Contractor shall notify the Owner within 24 hours.
- c. If an Unusual Occurrence occurs that will substantially impact the ability of the Facility to remain in compliance with Authority Requirements or create off-site impacts, Owner shall have the right to conduct an investigation that may include an audit, interviews of the contractor and its subcontractors and consultants for any, and identify fault.
- d. In the event that the Owner finds that the Contractor or its subcontractor is at fault, the Contractor shall be responsible for the

costs associated with the repair of damage to the Facility and related costs or expense in remedying the root cause.

6.12 Audit.

- i. Owner shall have the right to audit and have access at all reasonable times to all records, receipts, invoices, files and other documents generated or maintained by Contractor relating to the Services or the Facility ("Account Records"). Any agreement entered into by the Contractor for services of any subcontractor or agent shall grant the same privileges to the Owner.

7. RECORD KEEPING AND REPORTING

- 7.1 General Record Keeping. Contractor shall maintain all accounting and other records related to its performance under this Agreement as shall be reasonably necessary to develop the reports required by this Agreement. Also, Contractor agrees to receive input from the Owner and others on data collection, information and record keeping, and reporting activities required to comply with applicable laws, regulations, and reporting requirements.
- 7.2 Record Security. Contractor shall maintain records required to conduct its operations, to support and to respond to requests from person or entity exercising jurisdiction under any Authority Requirement in the conduct of Contractor's operations. Adequate record security shall be maintained to preserve records. Electronically maintained data/records shall be protected and backed up in order to ensure complete and accurate retrieval of information.
- 7.3 Manuals Procedures and Plans. Contractor shall create and maintain documentation including but not limited to Operations and Maintenance Manual, Load Screening Procedure, Gen-set Manual, and Safety Procedures, Tipping Fee Plan, Odor Control Plan, Effluent Disposal Plan, Good Neighbor Plan. Contractor shall revise such manuals, plans and procedures as necessary to keep it current with Facility conditions, procedures, and requirements. Contractor must submit amendments and revisions to the Owner for written approval prior to implementation.
- 7.4 Logs. Contractor shall maintain delivery manifests and logs for load checking Tipped Feedstock, Unacceptable Feedstock, Rejected Feedstock, Effluent Disposal, Complaints, Unusual Occurrences, Safety incidents, maintenance logs, testing results, site access log, electricity generation and electricity exported. Log templates and changes to the templates must be submitted to the Owner for approval

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- 7.5 Retention of Records. Unless a longer record retention period is required by law, the Contractor shall retain the Account Records, Monthly Reports, and Annual Reports required to be maintained by this Agreement for at least one (1) year after the expiration or earlier termination of this Agreement. Records and data that are specifically directed to be retained shall be made available to the Owner in Electronic Format.
- 7.6 Copies of enforcement actions provided to the Owner. Contractor shall immediately provide Owner with a copy of any notice of violation or noncompliance, citation, or any other similar enforcement actions issued to Contractor by any federal, state, or local government, and related to the operation of the Facility.
- 7.7 Monthly Reports. Within 30 days of the end of the month, Contractor will provide Owner with a Pacing Report and an internal financial statement for the operations.
- 7.8 Annual Report. The Annual Report shall include the content of the monthly reports on an annual basis. Contractor shall have 90 days from the close of its fiscal year to provide Annual Report if it includes year-end results.
- 7.9 Report Submittal
Reports shall be submitted to:
- Collinwood Bioenergy, LLC
Attn: Rick Gerling
50 Public Square Suite 1060
Cleveland Ohio 44113

8. FINANCIAL AND BUDGETING

8.1 Contractor is responsible for reporting in writing to the Owner all actions needed to remain in compliance with all Authority Requirements, and through the budget process recommend any improvement to meet current or future regulatory requirements

8.2 Contractor shall deliver a detailed budget and marketing plan within thirty (30) days of the Effective Date and shall update the budget and marketing plan thirty (30) days prior to beginning of each year during the term hereof. The budget and marketing plan shall be subject to Owner's review and approval. Once Owner and Contractor have agreed upon the budget, the budget shall be set for the following year and Contractor shall be authorized to make all repairs and capital equipment purchases shown on the budget.

8.3 Contractor shall organize quarterly strategy meetings with the Owner. Items to include but not be limited to include: feedstock status proposals and quotes, as well as

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discussion of annualized tip contracts such that the Facility represents a commensurate share of both quantity and quality of feedstocks in the market, effluent disposal, maintenance and subcontracting.

9. INSURANCE

9.1 At all times during the Term, Contractor shall maintain in effect insurance coverage as specified in Exhibit C hereto.

9.2 Owner shall maintain Owner's usual liability insurance. In addition, Owner shall maintain property insurance coverage in the full replacement value for the Facility.

10. EVENTS OF DEFAULT

10.1 Events of Default. Subject to the terms of Section 15.3 each of the following events shall constitute a default under this Agreement unless cured as provided herein and shall be considered a material breach of this Agreement:

- a. Failure of Contractor to provide the Services defined in Section 4, Section 5, and Section 6 or to the extent required by the Operations Manual and Gen Set Operations Manual and any specifications or user manuals applicable to the Facility;
- b. Commencing at any time after the date which is 120 days after the Start Commissioning Date, the failure of the Contractor to operate the ADS at or above the Minimum ADS Performance Level for 30 consecutive days or 60 or more days in a 365 day period.
- c. Failure of the Contractor to achieve 75% of budgeted NOI for the prior 12-month period.
- d. Failure of Owner to pay any amount due to Contractor for Services or to reimburse Contractor for any Pass Through Expenses in accordance with this Agreement;
- e. A material breach of any representation or warranty herein by either party;
- f. Failure of Contractor or Owner to timely observe or perform any other material covenant, agreement, obligation, term or condition required to be observed or performed under this Agreement;
- g. The institution by Contractor or Owner of bankruptcy, receivership, insolvency, reorganization, or other similar proceedings instituted by or against Contractor or Owner under any section or chapter of the United States Bankruptcy Code, as amended, or under any similar laws or statutes of the United States or any state thereof, if such proceedings have not been dismissed or discharged within thirty (30) days after they are instituted.

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With respect to any payment default, the defaulting party shall have a cure period of ten (10) days following written notice from a non defaulting party within which to make such payment and cure such default. With respect to those events set forth in Sections 10.1a, b, e and f, the defaulting party shall have a period of fifteen (15) days from receipt of written notice from the non defaulting party to commence to cure any such default, provided that in any event such event of default must be cured not later than sixty (60) days after the notice of the event of default. There shall be no cure period with respect to Section 10.1(c).

11. TERMINATION

11.1 Termination.

- a. This Agreement may be terminated at any time as follows: (i) by mutual written agreement of the parties; or (ii) in the event of the occurrence of an Event of Default. Notwithstanding the foregoing, in the event that Owner fails to exercise its right to terminate this Agreement as a result of Contractor's default under Section 10.1(c) within sixty (60) days after Owner's receipt of audited financial statements for the prior year establishing the actual NOI, Owner waives the right to terminate the Agreement as a result of Contractor's failure to achieve the required NOI for that particular year. Owner does not waive its right to terminate this Agreement as a result of Contractor's failure to achieve the targeted NOI for any succeeding year.
- b. Upon termination of this Agreement, the parties shall have no further obligations to each other under this Agreement or otherwise accruing after the date of such termination, except for: (i) liabilities and obligations accruing prior to the date of termination and (ii) any provisions which by their terms survive the expiration or termination of this Agreement.

11.2 Delivery of Records and Materials. Within thirty (30) days upon receipt of notice of termination, or upon expiration of this Agreement, Contractor shall forthwith deliver to Owner all financial and operational books and records ("Records and Materials") prepared or used by Contractor in connection with the Services, except those Records and Materials, if any, owned by Contractor prior to the date of this Agreement or supplied for performance of the Services by Contractor at its own cost. Contractor may retain one copy of Records and Materials for its records.

12. REMEDIES

In the event of any default by Contractor herein relating to Contractor's obligation to perform Services, Owner shall have the right to perform such Services with its own forces or with a subcontractor or vendor qualified to perform the work. Contractor shall not be responsible for

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any damages or defective work caused by and resulting from Owner's exercise of this self-help remedy. Any cost incurred by Owner in performing such Services may be offset against any amounts otherwise due Contractor herein. In the event the amounts incurred by Owner exceed amounts due to Contractor, Contractor shall reimburse Owner for such costs within thirty (30) days of demand. In addition to the foregoing remedy and the termination remedy provided in Section 11, Owner and Contractor shall each have all remedies relating to a default of the other party provided herein or as otherwise provided at law or in equity. Each of these remedies shall be cumulative and non-exclusive.

13. WARRANTIES

13.1 Warranties of Authority. Each of Contractor and Owner represents and warrants that:

- a. it is duly qualified to do business and is in good standing in the State of Ohio;
- b. it has full power and authority to execute, deliver and perform its obligations under this Agreement;
- c. the execution, delivery and performance of this Agreement by the warranting Party have been duly and validly authorized by all necessary action on the part of the warranting Party; and
- d. the execution and delivery of this Agreement by the warranting Party and the performance of the terms, covenants and conditions contained herein will not violate the articles of incorporation or by-laws of the warranting Party, or any order of a court or arbitrator, and will not conflict with and will not constitute a material breach of, or default under, the provisions of any material contract by which the warranting Party is bound.

The warranties of this Section 13.1 shall survive the expiration or termination of this Agreement.

13.2 Contractor's Services Warranty. Contractor represents and warrants that the Services will be performed:

- a. in a diligent, professional and workmanlike manner in accordance with applicable industry standards and warranties provided;
- b. in accordance with this Agreement; and
- c. by qualified personnel trained by Contractor.

14. INDEMNIFICATION

14.1 General Agreement to Indemnify.

- a. Contractor and Owner (each, an "Indemnifying Party"), to the fullest extent allowed by law, shall indemnify, defend (with counsel reasonably acceptable to the Indemnified Party) and hold harmless the other party and any member, director, officer, manager, employee or Affiliate of the other party (each, an "Indemnified Party") from and against any and all claims, actions, suits, judgments, proceedings, liabilities, obligations, losses, and damages, amounts paid in settlement, interest, costs and expenses (including reasonable attorney's fees, penalties (civil, criminal or administrative), court costs and other out-of-pocket expenses incurred in investigating, preparing or defending the foregoing) relating to or arising from personal injury, bodily harm or death, or property damage ("Losses") incurred or suffered by any Indemnified Party to the extent that the Losses arise solely by reason of, or result from (i) the material breach of or inaccuracy of any representation or warranty of the Indemnifying Party contained in this Agreement; or (ii) the material breach by the Indemnifying Party of any of its covenants or agreements contained in this Agreement, to the extent not waived, in writing, by the other party, in each case; or (iii) any negligent act or omission of the Indemnifying party or its officers, members, employees, agents or contractors.

14.2 General Procedures for Indemnification.

- a. The Party seeking indemnification under this Agreement shall promptly notify the Party against whom indemnification is sought of the assertion of any claim, or the commencement of any action, suit or proceeding by any third party, in respect of which indemnity may be sought hereunder and will give the Indemnifying Party such information with respect thereto as the Indemnifying Party may reasonably request, but failure to give such notice shall not relieve the Indemnifying Party of any liability hereunder (except to the extent the Indemnifying Party has suffered material prejudice by such failure).
- b. The Indemnified Party shall have the right to participate in, at its own expense, the defense of any Third-Party Claim that the Indemnifying Party is defending, as provided in this Agreement.
- c. The Indemnifying Party, if it has assumed the defense of any Third-Party Claim as provided in this Agreement, shall not consent to a settlement of, or the entry of any judgment arising from, any such Third-Party Claim without the Indemnified Party's prior written consent (which consent shall not be unreasonably withheld) unless such settlement or judgment relates solely to monetary damages. The Indemnifying Party shall not, without the Indemnified Party's prior written consent, enter into any compromise or

settlement that (i) commits the Indemnified Party to take, or to forbear to take, any action, or (ii) does not provide for a complete release and, if applicable, covenant not to sue by such third party of the Indemnified Party.

14.3 Survival. The indemnification obligations under this Section shall survive the expiration or termination of this Agreement subject to any applicable statute of limitations.

15. MISCELLANEOUS

15.1 Disclaimer of Joint Venture, Partnership, and Agency. This Agreement shall not be interpreted or construed to create an association, joint venture, or partnership between the Parties or to impose any partnership obligation or liability upon either Party. Neither Party shall have any right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, the other Party unless explicitly set forth herein.

15.2 Assignment. Contractor may not lease, assign, mortgage, sell, or otherwise transfer its interest in or any rights under this Agreement or control of the Facility to any third party without the prior express written consent of Owner;

15.3 Force Majeure.

- a. Neither Party shall be liable to the other Party for damages (if such Party's performance is delayed or prevented due to an event of Force Majeure. In such event, the affected Party shall promptly notify the other Party of the event of Force Majeure and its likely duration. During the continuation of the Force Majeure Event, the nonperforming Party shall (i) exercise commercially reasonable efforts to mitigate or limit damages to the performing Party; (ii) exercise commercially reasonable efforts to overcome the Force Majeure event; (iii) to the extent it is able, continue to perform its obligations under this Agreement; and (iv) cause the suspension of performance to be of no greater scope and no longer duration than the Force Majeure event requires.
- b. "Force Majeure" shall mean any act, event or condition materially and adversely affecting the ability of the Contractor or Owner to perform or comply with any material obligation, duty or agreement required under this Agreement, if such act, event, or condition is beyond the reasonable control of the nonperforming Party, is not the result of the willful or negligent action, inaction or fault of the Party relying thereon or of any of its agents, employees, officers, members or subcontractors, and the nonperforming Party has been unable to avoid or overcome the act, event or condition by the exercise of due diligence; such acts, events and conditions to include, without limitation: (i) an act of God, epidemic, landslide, lightning, earthquake, fire, explosion, severe storm (including a storm attended by wind, tornado, rain, hail, snow or ice), flood or similar occurrence; (ii) an act of public enemy, war, blockade, insurrection, riot, general unrest or restraint of government and

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people, civil disturbance or disobedience, sabotage, vandalism, act of terrorism or similar occurrence; (iii) a strike, work slowdown, or similar industrial or labor action; (iv) an order or judgment (including without limitation a temporary restraining order, temporary injunction, preliminary injunction, permanent injunction, or cease and desist order) or other act of any federal, state, county or local court, administrative agency or governmental office or body which prevents a party's obligations as contemplated by this Agreement; or (v) adoption or change (including a change in interpretation or enforcement) of any federal, state or local law after the Effective Date, preventing performance of or compliance with the obligations hereunder.

15.4 Notices. All notices to be given to Owner or Contractor, shall be in writing and delivered personally, or shall be mailed by U.S. mail, registered or certified mail, return receipt requested or by overnight service with receipt to the following address:

CONTRACTOR: quasar energy group, llc
 7624 Riverview Road
 Independence, Ohio 44131
 Attn: Steven Smith

OWNER: Collinwood BioEnergy, LLC
 50 Public Square, Suite 1060
 Cleveland, OH 44113
 Attn: Jon Ratner

With a copy to: Forest City Enterprises, Inc.
 50 Public Square, Suite 1360
 Cleveland, OH 44113
 Attn: General Counsel

15.5 Governing Law; Venue.

- a. This Agreement and any and all issues arising hereunder or relating hereto shall be governed and construed according to the laws of the State of Ohio without reference to principles of conflicts of laws.
- b. The Parties agree that all actions or proceedings arising in connection with this Agreement shall be tried and litigated only in the state and federal courts located in Cuyahoga County, Ohio. In the event of any litigation the prevailing party shall be entitled to recover its attorney's fees, and court costs from the other party.

15.6 Entire Agreement. It is understood and agreed that all understandings and agreements heretofore had between the Parties relating to the subject hereof are merged in this

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Agreement, which alone fully and completely expresses their agreement and contains all of the terms between the Parties with respect to the subject matter hereof, and that the Agreement is entered into after full investigation, neither Party relying upon any statement or representation, not embodied in this Agreement, made by the other.

15.7 Amendment. This Agreement may not be amended, modified or supplemented, except in writing and signed by both Owner and Contractor.

15.8 Waiver. No waiver by either Party of any failure or refusal by the other Party to comply with its obligations shall be effective unless provided in writing and no such waiver shall be deemed a waiver of any other or subsequent failure or refusal to so comply.

15.9 Severability; Modification Required By Law. If any term or provision of this Agreement shall be found by a court of competent jurisdiction to be invalid, illegal or otherwise unenforceable, the same shall not affect the other terms or provisions hereof or the whole of this Agreement, but such term or provision shall be deemed modified to the minimum extent necessary in the court's opinion to render such term or provision enforceable, and the rights and obligations of the parties shall be construed and enforced accordingly, preserving to the fullest permissible extent the intent and agreement of the parties herein set forth.

15.10 Headings. The headings of sections and subsections of this Agreement are inserted for convenience only and shall not in any way affect the meaning or construction of any provision of this Agreement.

15.11 Binding Nature. This Agreement and all of the provisions hereof shall be binding upon and inure to the benefit of the Parties and their respective successors and permitted assigns.

15.12 Construction. This Agreement and its exhibits and schedules are the result of negotiations between the parties and have been reviewed by each Party. Accordingly, this Agreement will be deemed to be the product of both of the Parties hereto and any ambiguity will not be construed in favor of or against any party.

15.13 No Third Party Beneficiaries. Nothing in this Agreement, express or implied, is intended to confer upon any third party any rights, remedies, obligations, or liabilities under or by reason of this Agreement.

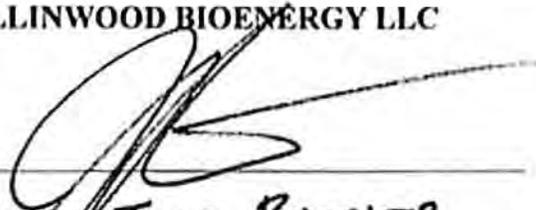
15.14 Counterparts. This Agreement may be executed in one or more counterparts, each of which will be deemed an original, but together will constitute one and the same instrument.

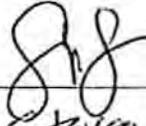
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WHEREFORE, Contractor and Owner have executed this Agreement on the date first written above.

COLLINWOOD BIOENERGY LLC

quasar energy group, LLC.

By:  _____

By:  _____

Name: JON RATNER

Name: STEVEN M. SMITH

Title: PROSIDENT, FCSR

Title: Vice President : CFO

Date: 2/14/2012

Date: JANUARY 31, 2012

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EXHIBIT A
Pass Through Expenses

Specialized Equipment and Specialized Small Tools

Equipment Rental

Fuel for equipment

Facility Insurance

Licenses, Permits & Fees

Phone - Landline

Phone – Internet

Facility Taxes

Repairs and Maintenance – Requiring a Licensed Professional to the extent that the contractor does not have such a licensed professional on it staff.

Grounds Upkeep

Snowplowing

Replacement items for routine maintenance (filters, fluids, biofilter media, etc.)

Parts for or Replacement equipment

Office equipment repair or replacement

Public relations expenses

Subcontracted expenses

Maint & Repairs – (items on the accrual budget) Capital Items

Seed Sludge transportation

Utilities - Electric, Water, Sewer, Storm Sewer, Natural Gas, Trash Disposal

Feedstock Transportation

GenSet Maintenance and Repair

Effluent disposal

EXHIBIT B

Major Maintenance Accrual

Gen-set	\$2,083.33
Pumps	\$935.00
Mixers	\$666.67
Membrane	\$619.05
Valves	\$118.06
Sensors	\$104.17
Flare	\$291.67
Blowers	\$70.00
Motors	\$166.67
Total Monthly Accrual	\$5,054.60
Annual Accrual	\$60,655.24

EXHIBIT C:
Insurance

- 1.1 The Contractor shall carry and maintain the insurance coverages set forth below, all in accordance with the terms, stipulations, and specifications contained herein.
- 1.2 The Contractor shall provide to and for approval of the Owner valid duplicate original Certificates of Insurance and/or, at the Owner's option, a certified copy of the insurance policies and any and all endorsements of riders thereto, evidencing compliance with all requirements contained in this Agreement, all in form and substance satisfactory to the Owner. The Contractor shall provide Owner with proof of payment of premiums in full for the current annual period or, if such premiums are financed, evidence that premiums are current.
- 1.3 Acceptance and/or approval of the insurances herein does not and shall not be construed to relieve Contractor from any obligations, responsibilities or liabilities under the Agreement.
- 1.4 All insurances required by the Agreement shall: (i) be obtained at the sole cost and expense of the Contractor; (ii) be maintained with insurance carriers properly licensed to do business in all states required by the terms of this Agreement, and acceptable in all respects, to the Owner; (iii) be "primary" and non-contributing to any insurances maintained by Owner; (iv) contain a Waiver of Subrogation in Favor of the Owner (except for Workers Compensation and Employer's Liability Insurance), so that in no event, shall the insurance carriers have any right of recovery against the Owner or its employees, (v) provide that written notice be given to the Owner and all additional insureds and certificate holders at least thirty (30) days prior the cancellation, non-renewal or modification of any such policies, which notice shall be evidenced by return receipt of United States certified mail; and (vi) name the Owner and any subsidiary, parent or affiliates of the Owner and its partners, directors, officers, agents, and employees or others or entities with an insurable interest designated by the Owner as additional insureds thereunder (except for Workers Compensation and Employer's Liability insurances).
- 1.5 The Contractor shall cause all insurances to be in full force and effect as of the date of this Agreement and to remain in full force and effect as of the date of this Agreement and to remain in full force and effort throughout the term of this Agreement and as further required by this Agreement. The Contractor shall not take any action, or omit to take any action that would suspend or invalidate any of the required coverages during the time period such coverages are required to be in effect.

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- 1.6 Within thirty (30) days of the expiration date or renewal date, the Contractor shall supply the Owner with updated replacement Certificates of Insurance, amendatory riders, and endorsements, and/or certified copies of insurance policies, together with evidence of payment of the premium, that clearly evidence the continuation of all of the terms and conditions of the coverage, limits of protection, and scope of coverage as was provided by the expiring Certificates of Insurance, certified copies of insurance policies and amendatory riders or endorsements as originally supplied.
- 1.7 If the Contractor fails to purchase and maintain, or fails to require to be purchased and maintained, the insurance specified in this Agreement, Owner may (but shall not be obligated to) purchase such insurance on the Contractor's behalf and shall be entitled to be repaid by the Contractor for any premiums paid therefor.
- 1.8 The Contractor shall select reputable and financially sound insurers to underwrite the required coverages acceptable to Owner. In all instances, each insurer selected must be rated at least "A" (Excellent) Class "X" in the most recently published Best's Insurance Report. If an insurer's rating falls below "A" (Excellent) Class "X" during the term of the policy, the insurance must be replaced no later than the renewal date of the policy with an insurer acceptable to Owner and having an "A" (Excellent) Class "X" rating in the most recently published Best's Insurance Report.
- 1.9 Upon written request of the Owner, the Contractor shall provide, or shall cause to be provided, information on the status of aggregate limit erosion.
- 1.10 No act or omission of any insurance agent, broker or insurance company representative shall relieve Contractor of any of its obligations under this Agreement.
- 1.11 The Contractor, throughout the term of this Agreement or as otherwise required by this Agreement, shall obtain and maintain in full force and effect the following casualty/liability insurances with limits not less than specified herein and as required by the terms of this Agreement or as required by law, whichever is greater.
 - .1 Commercial General Liability Insurance or its coverage equivalent is to be provided under the Insurance Service Office's (ISO) most current form, with a combined single limit for Bodily Injury and Property Damage of not less than \$5,000,000, each occurrence, which insurance shall include a comparable limit with respect to Personal Injury and Advertising Injury. (This limit may be provided through a combination of primary and umbrella/excess liability policies). Such insurance shall include the following coverages:

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- .1 Premises Operations coverage, including independent contractors, with limits of liability applying on a per location basis.
- .2 Product Liability and Completed Operations coverage, with the provision that coverage shall extend for a period of at least twelve (12) months from the date of final completion and acceptance by the Owner of all of Contractor's Work.
- .3 Contractual Liability coverage for the contractual liabilities assumed under this Agreement.
- .4 Personal Injury and Advertising Injury Liability coverage to include injury sustained by any person as a result of an offense directly or indirectly related to employment of such person by the insured, or by any other person and liability assumed under contracts.
- .5 Extended Bodily Injury coverage with respect to bodily injury resulting from the use of reasonable force to protect persons or property.
- .6 Premises and Operations Medical Payments coverage.
- .7 Broad Form Property Damage Liability coverage, including coverage for completed operations.
- .8 Explosion, Collapse, and Underground Property Damage coverage providing protection for property damage resulting from these hazards.

.2 Worker's Compensation, Occupational Disease Benefits, Voluntary Compensation, and Disability Benefits, Defense Base Act, and any other federal and/or state coverages, as required, for not less than the statutory limits, and if applicable, an "Other States Endorsements"; Employers' Liability Insurance or Stop-Gap Employers' Liability Insurance with limits of not less than by accident \$1,000,000 each accident, by disease \$1,000,000 each employee. (These limits may be provided through a combination of primary and umbrella/excess liability policies).

.3 Comprehensive Business/Automobile Liability Insurance to include uninsured/underinsured and medical payment protection covering any automobile, including owned, leased, hired, and non-owned automobiles, with a combined single limit for Bodily Injury and Property Damage of not less than \$1,000,000 per accident.

.4 Hazardous Material Liability Insurance covering Bodily Injury and/or Property Damage with limits of not less than \$1,000,000.

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.5 Professional Liability Insurance covering Errors and Omissions, with limits of liability of not less than \$2,000,000 per occurrence.

.6 A fidelity bond or crime policy with a minimum limit of \$100,000.

Collinwood Bioenergy, LLC and its' members, parents, subsidiaries and affiliates shall be named as additional insured on the policies (with the exception of Worker's Compensation and Employer's Liability insurances).

Exhibit D

**ANAEROBIC DIGESTION FACILITY
BIOMASS ACCEPTANCE PROTOCOL**

1. Only pre-approved materials from approved sources are accepted at this facility. No hazardous waste is accepted at this facility.
2. Truck drivers will have to be pre-approved through background check and present picture ID with deliveries.
3. Inflow biomass, including biosolids (sewage sludge), must be below ceiling limits for Cu, Cd, Ni, Zn, Pb, As, Se, Mo, Hg, and PCB (and for out-of -state generators, dioxins/dibenzofurans) as required in 40 CFR 503 and OAC 3745-40. The goal of the Anaerobic Digestion Facility (ADF) is to produce Exceptional Quality (EQ) products, so we will limit intake of biomass with metals in biomass that exceed the EQ limits by more than 25%.

Pollutant	Ceiling Concentration in PPM
Arsenic	75
Cadmium	85
Copper	4,300
Lead	840
Mercury	57
Molybdenum	75
Nickel	420
Selenium	100
Zinc	7,500
PCB	<1

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4. Biosolids generators must provide their historical and quarterly NPDES permit limits and analytical data to QEG for prior approval. The EPA is aware of pollutants in specific wastewater treatment plants that may be of concern in addition to the Federal rules and regulations.
5. This facility will not accept loads with plastic bed liners or chemical treatments to keep loads from freezing or sticking to the truck bed.
6. A Manifest will be required in addition to a weight slip.
7. See below for detailed requirements and restrictions.

BIOMASS QUALITIES & PRICING BASIS

Price for use of the ADF is based upon several factors which affect management of the facility in terms of total loading rates, volatile solids loadings rates, nutrient management, C:N ratio balance, digested product output, and effluent generation and management. The following are acceptable operational ranges for acceptance of biomass and surcharges for exceeding of the limits:

- (A) Variance from the following limits will result in additional cost for disposal and/or rejection of the biomass from the facility. See **Surcharges** below.
- (B) **% Total Solids** – Biomass received must be pumpable. The normal range for this is liquid (<1% to 12%) to semi-solid sludge (<30% total solids). Once an expected % Total Solids for the incoming biomass is established, then the acceptable range is established at 5% above that % Total Solids. The expected range of % Total Solids is 9 to 19%.
- (C) **% Volatile Solids** – This is the relative strength of the biomass. The ADF can only process a set dry tonnage of VS/day. Once an expected % Volatile Solids for the incoming biomass is established, then the acceptable range is established at 5% above that % Volatile Solids. The expected range of % Volatile Solids is 80 to 90%.
- (D) **Nitrogen Content** of the ADF must be limited to prevent ammonia toxicity. Once an expected Nitrogen Content (Total Kjeldahl Nitrogen on dry weight basis) for the incoming biomass is established, then the acceptable range is established at 5% above that % Nitrogen Content. The expected range is 10 to 20% nitrogen (TKN).
- (E) A balanced **C:N ratio** range of 20:1 to 40:1 is required for the biomass mixture entering the ADF. As such limits will be set on daily volume of high nitrogen biomass relative total intake. The expected C:N ratio is 10:1 to 12:1.
- (F) **pH** – Once an expected pH for the incoming biomass is established, then the acceptable range is established at 2 S.U. above or below that pH. Maximum and minimum pH values are 12.5 and 5.0, respectively.
- (G) **Septic or Soured Wastes** – May not be acceptable to this facility because of potential for digester upsets. Each will be evaluated on a case by case basis.

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Surcharges – It is understood that contamination (inorganic material and foreign objects) could do damage and /or reduce the efficiency of the anaerobic digestion process. Every reasonable effort to prevent contaminants from being transported to quasar will be made. In the event contaminants are received quasar will contact waste generator to determine an acceptable disposal alternative.

Quasar Energy Group, LLC Manifest

Generator:	
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Address: _____

City/State: _____

Generator Contact: _____

Phone No.: _____

Fax No: _____

Generator Certification: I, _____, certify that the biomass in this load is not hazardous, was generated by this facility and that it does not contain pollutants of regulatory in excess of 40 CFR 503, OAC 3745-40, or the facility NPDES permit.