STATEMENT OF BASIS

Green Circle Bio Energy Inc.
Cottondale Wood Pellet Facility
Facility ID No.: 0630058
Jackson County

Initial Title V Air Operation Permit
FINAL Permit No.: 0630058-005-AV

The purpose of this permitting action is to issue an Initial Title V air operation permit, issued under the provisions of Chapter 403, Florida Statutes (F.S.), and Florida Administrative Code (F.A.C.) Chapters 62-4, 62-210, and 62-213 to Green Circle Bio Energy, Inc. The above named Permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans, and other documents, attached hereto or on file with the permitting authority, in accordance with the terms and conditions of this permit.

This is the facility's Initial Title V Air Operation Permit. The Initial Title V permit application was received June 14, 2010, additional information was requested June 30, 2010, and the additional information response was received August 13, 2010, making the Initial Title V permit application complete. This proposed Initial Title V permit follows construction permit 0630058-001-AC, effective July 13, 2007, construction permit 0630058-002-AC, effective September 29, 2008, construction permit 0630058-003-AC, effective July 8, 2009 (which supersedes permits 0630058-001-AC and 0630058-002-AC), and construction permit 0630058-004-AC, effective June 14, 2010. Construction permit 0630058-006-AC, to establish a wood pellet production limit, is incorporated into, and processed concurrently with this Initial Title V permit.

This facility has no rule-based source-specific limitations but has established annual emission limits to avoid PSD Review and will be held to these limits. Potential emissions of PM/PM10, NO_X, and VOC over 100 tons per year define this facility as a Major source of Air Pollution or Title V Source (62-201.200(192), F.A.C. This facility does not belong to the 27 facility categories which require inclusion of fugitive emissions.

This facility has some sources subject to the Compliance Assurance Monitoring (CAM) regulations of 40 CFR 64. Dryer Lines No.1 and No. 2 (EU 002 & EU 003) are subject to air emission limits for NO_X, PM, and VOC, use control devices (wet electrostatic precipitator (WESP) and regenerative thermal oxidizer (RTO), and are accordingly subject to CAM for PM and VOC. Pelletizing Lines No. 1, No. 2, and No. 3 (EU 004, EU 005, and EU 006) are subject to permitted emissions limits for PM and VOC, use control devices (fabric filters and cyclones) to achieve compliance with the permitted limits, and are accordingly subject to CAM for PM. VOC emissions are not controlled.

A Compliance Monitoring Plan is part of the Title V permit and ensures compliance and/or corrective measures. Permittee shall follow all procedures outlined in the most recently submitted and approved Compliance Monitoring Plan (Appendix CMP).

This facility is a wood fuel pellet plant, comprised of a wood fiber receiving and storage area, 2 dryer lines, 3 pelletizing lines, and a pellet load-out area.

The wood fiber receiving and storage area (EU 001) begins with wood fiber being trucked to the Green Circle site as tree-length pulpwood logs (over 95% yellow pine) or sawmill residuals (chips, sawdust, shavings). Site traffic travels on paved roadways to the wood fiber receiving area. All incoming trucks are weighed using on site truck scales. Log trucks are unloaded with the mobile equipment directly into the drum debarker or the on site log storage. Stacked logs are stored on site for use during weather events and other logging curtailments. Ten to twenty days of logs (61,000 tons) will normally be stored on site. An automated truck dump unloads sawmill residuals deliveries. A belt conveyor transports the residuals up to the chip storage stacker and reclaimer.

Logs are removed from the storage piles by mobile handing equipment, and grapple fed into a single rotary drum debarker, which removes the tree bark as the logs flow through the drum. A green wood chip grinding

system (EU 009) chips the logs to very uniform sizes under 3/8" dimensions. Chips are screened and graded and oversized chips are rerouted through the grinder.

Bruks-Klockner Tubulator belt conveyors are used for chip conveyance. Chips exiting the chipper are conveyed up to the chip storage stacker and reclaimer. Chip storage will have one stacker conveyor and one inclined reclaimer conveyor. Chips are deposited via belt conveyor on the pile top radius opposite the reclaimer. Reclaim of the chips is accomplished with an inclined surface scraper reclaimer. Stacker and reclaimer conveyors pivot around the pile radius to properly inventory the chips (First In-First Out). Six days of chip inventory (20,000 tons) will be stored in the pile to allow for logging delays and equipment upsets. Reclaimed chips are conveyed using belt conveyors to the Dryer Metering Bin.

Bark from the drum debarker is conveyed via belt conveyor up to the bark screen and hog. An electric powered hammer mill is used to reduce the bark to manageable sizes (minus 2 1/2" dimension) for best fuel handling and combustion. Bark fuel is conveyed via enclosed belt conveyors to the bark sand screen. Fines (i.e., sand) are removed from the bark fuel, to improve combustion efficiency and avoid the deposit of incombustible fly ash in the dry wood chips. Clean bark fuel is conveyed to the fuel storage stacker and reclaimer. Stacker and reclaimer conveyors pivot around the pile radius to properly inventory the bark fuel (First In-First out). A bark fuel supply of six days (5,000 tons) is maintained.

Two high technology rotary drum dryers (Dryer Lines 1 & 2, EUs 002 and 003) process the wood chips to 9% moisture content in preparation for grinding and pelletizing. Heat for the Chip Dryers is provided by two 125 MMBtu per hour bark fuel combustors, manufactured by the Teaford Company. These combustors have a modern reciprocating grate system for fuel spreading and controlled combustion. High humidity exhaust gases from the dryers are returned to the Combustors secondary combustion chamber, tempering the combustion and controlling the generation of NO_X. Gases from the secondary combustion chamber are drawn through a 6,900 lbs/hr steam generator. Steam is used in the Pelletizing process to soften the wood fiber prior to compression into pellets. Cooled gases at the exhaust of the steam generator are ducted to the dryer inlet to temper the combustor gases down to the Dryer Inlet target of 950ºF.

The Dryer Lines utilize two 18 ft x 80 ft Rotary Drum Dryers, manufactured by TSI, Inc., to dry the wood chips. Hot gases from the bark combustors are ducted directly to the Dryers. Each Combustor-Dryer system (Dryer Line) operates independently, sharing only the fuel feed system, chip delivery system and WESP water handling. Chips are delivered via belt conveyor to the common metering bin. Left and right metering mechanisms control the flow of the chips to each dryer. The chips are dropped through a large six pocket airlock into the front of the Dryer drum.

Exhaust gas recirculation is used to temper the incoming gases. A Dryer inlet temperature of less than 950ºF is maintained to reduce the risk of fires, improve the moisture uniformity and control the emission of pollutants. The high humidity and low oxygen content of the resultant dryer gas stream is very useful in drying control and safety. Wood chips and residuals are conveyed through the dryer drum by the mechanical action of the internal flighting and by pneumatic transport as the chips dry and become lighter. At the Dryer outlet, the chips are drawn up to the Dryer Cyclone. Sealed and insulated 75" diameter ducting connects the Dryer discharge with the high efficiency cyclone and on the Dryer Induced Draft fan. At the Dryer drum discharge, the dry chips are pneumatically conveyed in the lower temperature gas stream up to the Cyclone inlet near the top. Each dryer has one high efficiency cyclone for chip separation and one Induced Draft Dryer Fan.

Up to 50 % of the dryer gases leaving the Dryer Induced Draft Fan are re-circulated to the Dryer Inlet to temper the incoming combustor gases, with the remaining gases going to a WESP and RTO for emission controls. WESP bound gases are quenched with a recirculation water system. Each Dryer Line has a dedicated WESP and RTO, sharing a common water sump and handling system (filtration and controls minimize water discharges). Excess water from the WESP is used for ash wetting, combustion control and fuel adjustment in the bark fuel combustors.

Clean gas exiting the WESP is routed to a Regenerative Thermal Oxidizer (RTO), reducing VOC emissions by 95%. Propane gas is used as the supplemental fuel to maintain RTO efficiency. Clean gases are exhausted to the atmosphere through 75 foot high RTO exhaust stacks.

The Pelletizing Lines 1, 2, and 3 (EU 004, 005 and 006) equipment is manufactured by Buhler, Inc. of Switzerland. Dry wood chips are conveyed by a sealed chain conveyor to a dry chip storage bin, with a

capacity of approximately 300 tons of dry chips. The dry chip storage bin allows for moisture content equalization (9%).

Dry chips are metered into three Pelletizing Lines 1, 2, and 3. Sealed chain conveyors transport dry chips from the Dry Chip Storage Bin up into the Hammermill Building. All chain conveyors are sealed with continuous air aspiration for dust and fire control. All aspirated air is drawn through Buhler dust filters with an air to cloth ratio lower than 15 actual cubic feet per minute per square feet (ACFM per SF). All material handing of the wood chips and pellets is accomplished mechanically with sealed chain conveyors and augers. Wood dusts collected by the dust filters are directly deposited back into the process via airlocks.

Pelletizing Lines 1 and 3 have eight hammer mills each, with Pelletizing Line 2 having ten hammer mills, with each mill manufactured by Buhler, Inc., model no. Vertical Rotor DFZK-1. The hammer mills accurately grind the dry wood chips to under 4 mm (0.16”). The grinding and pelletizing process requires frequent scheduled replacement of machinery parts and dies to maintain critical process tolerances. The 26 hammer mills allow for reliable production without variation due to scheduled hammermill downtime.

An additional horizontally-oriented, rotor-type hammer mill, manufactured by Buhler, model DFZP-535 HP, with 284 hammers and associated aspiration system and baghouse was installed to evaluate the technology for a limited time period on Pelletizing Line No. 3. A dedicated aspiration system removes excess moisture and a baghouse manufactured by Buhler, model RPPR-41/6, controls particulate matter emissions from the aspiration system exhaust.

The ground wood fiber is conveyed to three sealed storage and metering bins each with a capacity of approximately 40 tons. A ventilation system in the grinding and pellet storage bins will help minimize condensation. These bins provide equalization time and surge capacity for machinery downtime. Steam is carefully applied to soften the wood fiber as it is drawn into the Pelletizer. The wood fiber is compressed by the Pelletizer rotating press rolls, exiting through the sizing die. The resultant heat of friction activates the wood lignin as the wood is compressed, effectively bonding the wood fiber into a durable pellet. This raises the pellet temperature in excess of 80ºC (180ºF) and eliminates any need for adhesives or bonding agents.

Pellets exiting the Pelletizer mills are conveyed via sealed chain conveyor to a counter flow pellet cooler, manufactured by Geelen Counterflow of the Netherlands. Each line has one Pellet cooler. Pellet cooling in necessary to reduce risk of spontaneous combustion. Each cooler uses counter-flow outside air, drawn into the pellet discharge bottom of the cooler, to rapidly cool the pellets to 10ºF above ambient air temperature and dry the pellets, losing 1 to 2% moisture content. Cooler exhaust has an air volume of 36,820 ACFM at 160ºF.

Hot exhaust air from the Pellet Cooler is ducted to two parallel high efficiency cyclones. These cyclones remove 90% of any entrained particulate in the exhaust air. Collected wood dust is discharge via a bottom airlock directly to the sealed chain conveyor delivering wood fiber to the Pelletizer mills. Entrained dust is expected to be coarser wood dust with moderate loadings due to the slow mechanical handling and transport of the finished pellets. The pellets are not subjected to aggressive tumbling or pneumatic transport that could result in dust generation. Pellet Cooler exhaust air is ducted from the cyclones to the induced draft fan and discharged through a 74 foot stack.

Each Pelletizing Line has a Pellet Cooler, twin cyclones, single ID fan and an exhaust stack.

In the Pellet Load-Out Area (EU 007), pellets exit the Counterflow Pellet Cooler to sealed chain conveyors and are transported to two storage bins above the two rail car loading area. Each bin has a capacity of 94 tons. The bins provide up to about two hours of pellet storage and uniformly meter the pellets out for rail car loading. All conveyors are sealed with dust aspiration air directed to a Buhler dust filter system.

Also included in this permit are miscellaneous unregulated/insignificant emissions units and/or activities: A 2000 gallon diesel storage tank (EU 008).

Based on the initial Title V permit application received June 14, 2010, this facility is not a major source of hazardous air pollutants (HAP).

	ESTIMATED POLLUTANTS (Tons per Year)				
PROCESS AREA	**PM/PM_{10}**	**NO_X**	**CO**	**VOC**	**SO_2**
Wood Fiber Receiving & Storage Area	168.3[1]/32.8	NA	NA	NA	NA
Dryer Line 1	19.90	122.65	11.10	24.10	0.17
Dryer Line 2	19.90	122.65	11.10	24.10	0.17
Pelletizing Line 1	58.80	NA	NA	59.033	NA
Pelletizing Line 2	58.80	NA	NA	59.033	NA
Pelletizing Line 3	58.80	NA	NA	59.033	NA
Bulk Load-out Area	0.71	NA	NA	NA	NA
Green Chip Grinder	0.43	NA	NA	NA	NA
Diesel Fuel Storage Tank	1.00	NA	NA	NA	NA
TOTAL **(w/o fugitives from Wood Fiber)**	386.64 218.34	245.30	22.20	225.30	0.34

SO_2 potential emission estimates are based on wood firing.

[1] PM estimated emissions are 168.3 T/yr fugitive emissions

Permittee has established maximum NO_X emissions limits for Dryer Lines 1 and 2, which collectively are just below PSD review limits. Any future changes to the Dryer Lines would potentially warrant a PSD review.

In conclusion, this proposed Initial Title V permit has no rule-based source-specific limitations but establishes emissions limits for PM/PM_{10}, NO_X, and VOC. It is recommended that this permit be issued.