TECHNICAL EVALUATION
&
PRELIMINARY DETERMINATION

APPLICANT

Rayonier Performance Fibers, LLC
PO Box 2002
Fernandina Beach, Florida 32035

Fernandina Beach Mill
ARMS Facility ID No. 0890004
Foot of Gum Street
Fernandina Beach, FL 32034

PROJECT

Project No. 0890004-035-AC
Application for Air Construction Permit
Nine Temporary Emergency Generators

COUNTY

Nassau, Florida

PERMITTING AUTHORITY

Florida Department of Environmental Protection
Northeast District Office
Air Resources Section
7625 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7590

January 10, 2011

1. GENERAL PROJECT INFORMATION

Air Pollution Regulations

Projects with the potential to emit air pollution are subject to the applicable environmental laws specified in Section 403 of the Florida Statutes (F.S.). The statutes authorize the Department of Environmental Protection (Department) to establish regulations regarding air quality as part of the Florida Administrative Code (F.A.C.), which includes the following chapters: 62-4 (Permits); 62-204 (Air Pollution Control – General Provisions); 62-210 (Stationary Sources – General Requirements); 62-212 (Stationary Sources – Preconstruction Review); 62-213 (Operation Permits for Major Sources of Air Pollution); 62-296 (Stationary Sources - Emission Standards); and 62-297 (Stationary Sources – Emissions Monitoring). Specifically, air construction permits are required pursuant to Rules 62-4, 62-210 and 62-212, F.A.C.

In addition, the U. S. Environmental Protection Agency (EPA) establishes air quality regulations in Title 40 of the Code of Federal Regulations (CFR). Part 60 specifies New Source Performance Standards (NSPS) for numerous industrial activities. Part 61 specifies National Emission Standards for Hazardous Air Pollutants (NESHAP) based on specific pollutants. Part 63 specifies NESHAP based on the Maximum Achievable Control Technology (MACT) for numerous industrial categories. The Department adopts these federal regulations on a quarterly basis in Rule 62-204.800, F.A.C.

Facility Process Description and Location

Rayonier is an acid sulfite based pulp mill using ammonia as a base chemical for the manufacture of dissolving pulps. This plant produces approximately 10 different grades of pulp. The pulp produced at this plant is used in products such as plastics, photographic film, LCD screens, paints, cigarette filters, pharmaceuticals, food productions, cosmetics and textiles. The mill is permitted to produce 165,852 ADMT of pulp on a 12 month rolling total basis.

The sulfite process utilizes a sulfurous acid and ammonium bisulfite cooking solution to chemically separate the lignin from the cellulose. Pine wood chips and cooking solution are cooked in the six (6) batch digesters. The cooking process requires approximately 6 hours to complete. The unbleached sulfite pulp and spent cooking solution (SSL- spent sulfite liquor) are separated over vacuum washers (red stock washers). The unbleached pulp is then sent into the screening area to remove any knots and tailings (uncooked, woody materials), while the SSL is pumped to the evaporators to concentrate the solids content before being burned in the recovery boiler. The collected knots and tailings are pressed for use as fuel in the No. 6 Power Boiler.

The sulfurous acid and ammonium bisulfite cooking solution is prepared in the "acid plant".

The unbleached pulp exiting the screening operation enters the bleach plant. The first stage in the bleaching plant is the Hot Caustic Extraction (HCE) stage. Caustic soda is used to remove hemi-cellulose (small chain cellulose molecules), from the pulp in small pressure vessels called HCE cells. The mill currently operates eight (8) such cells. The pulp is washed after this HCE stage. The spent solution, Hot Caustic Extract, is concentrated in a set of evaporators before being sold to Kraft mills for its sodium content and energy value.

Pulp leaving the HCE stage is further purified in continuous and batch stages using peroxide, chlorine dioxide, chlorine, sodium hydroxide, and sodium hypochlorite depending upon the pulp grade

specifications. Following these bleaching stages, the pulp passes through centrifugal dirt cleaners before being sent to the pulp machine. The pulp machine forms the sheet by draining water from the pulp slurry (containing 99% water) over a moving wire to a consistency of 50% water. The remainder of the water is removed by passing the pulp sheet over pressing and drying cylinders heated internally with steam. The pulp sheet, which contains approximately 7% moisture, is then wound onto a "jumbo" before being transported to the finishing room where the pulp sheet is cut into smaller rolls or sheets based on customer specifications. No coatings are used on any of the pulp grades produced by the mill.

The digestion, the HCE stage, and the pulp machine are high users of steam for heating. The steam is produced in the power boiler. Steam is also used to produce about 100 percent of the mill's electricity needs.

The recovery boiler provides steam for the evaporators and its emissions are scrubbed for sulfur dioxide recovery using an ammonia solution. The ammonium bisulfite produced in the scrubber is used for cooking acid make-up.

Facility Regulatory Categories

- The facility is a major source of hazardous air pollutants (HAP).
- The facility does not operate units subject to the acid rain provisions of the Clean Air Act.
- The facility is a Title V major source of air pollution in accordance with Chapter 213, F.A.C.
- The facility is a major stationary source in accordance with Rule 62-212.400, F.A.C. for the Prevention of Significant Deterioration (PSD) of Air Quality.

Project Description

The permittee is authorized to relocate and operate up to nine temporary emergency generators for the production of electricity. The generators will be brought on-site and used during periods of power supply disruptions. Generator engines will normally be Caterpillar model no. 3516 or similarly sized engines firing 15 ppm (maximum) by weight sulfur content No. 2 fuel oil. Each engine is nominally rated at 2682 hp with a maximum fuel consumption capacity of 126.6 gallons per hour. The new generator units are not intended or expected to result in an increase in production capacity.

Pursuant to Rule 62-212.400, F.A.C., Rayonier Performance Fibers, LLC provided information to show that the project will not exceed the significant emissions rates that require preconstruction review for the Prevention of Significant Deterioration (PSD) of Air Quality.

Proposed Work

Nine Temporary Emergency Generators: During periods of power supply disruptions the the permittee is authorized to relocate and operate up to nine temporary emergency generators for the production of electricity at the Fernandina Beach mill. Power supply disruptions may include but are not limited to turbine failure, malfunction or shutdown of steam production equipment, electrical system failure(s) annual mill outage, inability of the regional power company to supply sufficient power, etc. Normally air pollutant emissions associated with the generator operation will be partially or totally offset with reductions in emissions from the reduced operations of the recovery boiler and/or the power boiler.

The permittee may use electrical generators of different manufacturers, model nos. and size depending on emergency generator unit availability, facility needs, and power supply disruption characteristics, however the emissions shall be limited based upon the maximum fuel restriction of 272, 500 gallons per year the maximum time at the site of less than one year. . Emissions from each emergency generator shall be vented to the atmosphere individually.

Processing Schedule

10/31/2011 Department received the application for a minor source air pollution construction permit, application complete.

2. PSD APPLICABILITY

General PSD Applicability

The Department regulates major stationary sources of air pollution in accordance with Florida's PSD preconstruction review program as defined in Rule 62-212.400, F.A.C. A PSD applicability review is required in areas currently in attainment with the state and federal AAQS or areas otherwise designated as "unclassifiable". A facility is considered a major stationary source with respect to PSD if it emits or has the potential to emit: 5 tons per year or more of lead; 250 tons per year or more of any regulated air pollutant; or 100 tons per year or more of any regulated air pollutant and the facility belongs to one of the 28 PSD-major facility categories (fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input, coal cleaning plants (with thermal dryers), Kraft pulp mills, portland cement plants, primary zinc smelters, iron and steel mill plants, primary aluminum ore reduction plants, primary copper smelters, municipal incinerators capable of charging more than 250 tons of refuse per day, hydrofluoric, sulfuric, and nitric acid plants, petroleum refineries, lime plants, phosphate rock processing plants, coke oven batteries, sulfur recovery plants, carbon black plants (furnace process), primary lead smelters, fuel conversion plants, sintering plants, secondary metal production plants, chemical process plants, fossil fuel boilers (or combinations thereof) totaling more than 250 million British thermal units per hour heat input, petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels, taconite ore processing plants, glass fiber processing plants, and charcoal production plants.). Projects at existing or new major stationary sources are subject to PSD preconstruction review. In addition, proposed projects at existing minor sources are subject to PSD preconstruction review if potential emissions *from the proposed project* will exceed the PSD major stationary source thresholds.

Once a project becomes subject to PSD preconstruction review, each PSD pollutant is reviewed for PSD applicability based on emissions thresholds known as the "significant emission rates" defined in Rule 62-210.200, F.A.C. for the following pollutants: carbon monoxide (CO); nitrogen oxides (NO_X); sulfur dioxide (SO_2); particulate matter (PM); particulate matter with a mean particle diameter of 10 microns or less (PM_{10}); volatile organic compounds (VOC); lead (Pb); Fluorides (F); sulfuric acid mist (SAM); hydrogen sulfide (H_2S); total reduced sulfur (TRS), including H_2S; reduced sulfur compounds, including H_2S; municipal waste combustor organics measured as total tetra- through octa-chlorinated dibenzo-p-dioxins and dibenzofurans; municipal waste combustor metals measured as particulate matter; municipal waste combustor acid gases measured as SO_2 and hydrogen chloride (HCl); municipal solid waste landfills emissions measured as nonmethane organic compounds (NMOC); and

mercury (Hg). Pollutant emissions from the project exceeding these rates are considered "significant" and the applicant must employ the Best Available Control Technology (BACT) to minimize emissions of each such pollutant and evaluate the air quality impacts. Although a facility or project may be *major* with respect to PSD for only one regulated pollutant, it may be required to install BACT controls for several "significant" regulated pollutants.

PSD Applicability for Project

The following table summarizes the potential calculated changes (increases) in potential emissions attributable to the new nine temporary emergency generators project based on the application:

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Table A. Applicant's Projected Emission Increases (Tons per Year) and PSD Applicability

Pollutant	Baseline Potential Emissions	Potential Emissions	PSD Significant Emissions Rate	Subject to PSD?
SO2	0	0.03	40	No
NOx	0	39.38	40	No
CO	0	5.72	100	No
PM	0	1.27	25	No
PM_{10}	0	1.27	15	No
$PM_{2.5}$	0	1.27	10	No
VOC	0	1.91	40	No
CO_2e	0	3121	75,000	No

CO_2e -- Sum of emission rates of CO_2, CH_4, N_2O using GWP

GWP -- Global Warming Potentials

In order to restrict emissions below the PSD significant level for this project the applicant has requested a limit on the annual amount of fuel which could be combusted by the nine temporary emergency generators on a calendar year basis. The requested amount is 272,500 gallons per calendar year. Based upon this amount the maximum emission limited pollutant is oxides of nitrogen which is calculated at a maximum annual increase of 39.38 TPY.

3. FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP) REVIEW

Brief Discussion of Emissions and PSD Applicability

Since the proposed nine temporary emergency generators are considered a new unit(s), pursuant to Rule 62-212.400(2)(a), F.A.C., the review procedure used to determine whether a significant emission increase would occur as a result of this project was the Baseline Actual-to-Potential Applicability Test for Construction of New Emissions Units.

Table B. FDEP's Annual Emissions Summary (Tons per Year) w/ new Temporary Emergency Generators at physical design capacity (no restrictions) and PSD Applicability

Pollutant	Baseline Actual Emissions	Potential Emissions Design Capacity	PSD Significant Emissions Rate	Subject to PSD?
SO_2	0	1.06	40	No
NO_x	0	1441.98	40	Yes
CO	0	209.32	100	Yes
PM	0	46.52	25	Yes
PM_{10}	0	46.52	15	Yes
$PM_{2.5}$	0	46.52	10	Yes
VOC	0	69.77	40	Yes
CO_2e	0	114,265.81	75,000	Yes

Operation of the new temporary emergency generators at their physical design (nominally rated at 2682 hp and 126.6 gallons per hour each engine), would result in project emissions above the significant emissions threshold for PM, PM_{10}, $PM_{2.5}$, NO_x, CO, VOC, and CO_2e and therefore would trigger PSD review. The Department review confirms that operating conditions for the new temporary emergency generators are required to insure that a significant increase in emissions after completion of the project does not occur. The following additional conditions are necessary to provide reasonable assurance of compliance with applicable regulations:

- The permittee shall limit the number of temporary emergency generators relocated to the Fernandina Beach mill site to nine at any given time.
- Fuel containing a maximum of 15 ppm by weight sulfur content.
- Fuel types shall be limited to virgin No. 2 fuel oil or biodiesel fuel (each fuel shall meet federal specifications for diesel fuel).
- The quantity of fuel combusted in this emission unit shall be limited to 272,500 gallons per calendar year
- The permittee shall record the following information:
    a. Manufacturer name and date of manufacture of engine(s)
    b. Model No. of each engine
    c. Generating capacity in kW of each engine
    d. No. of cylinders and displacement per cylinder (liters or cubic inches)
    e. Quantity of fuel combusted and kWh generated while located at the site (total engines)
    f. Date and number of generators relocated to the site during each power supply disruption
    g. Description of each power supply disruption event, including magnitude of event affecting existing emission unit(s)
    h. Estimate of the quantity of the following pollutants (total from all engines) generated while located at the site:

i. Carbon Monoxide
ii. Oxides of Nitrogen
iii. Sulfur dioxide
iv. Volatile Organic Compounds
v. Particulate Matter (PM),PM_{10} , and $PM_{2.5}$

i. Date each generator is removed from the site during each power supply disruption

j. Maintain fuel record receipts and supplier certifications for the fuel combusted in the temporary emergency generators. Receipts and certifications shall include the supplier name, type of fuel supplied and sulfur content of fuel supplied.

Provide calculations for each pollutant estimate including supporting documentation for any emission factors used.

- The permittee shall submit to the Permitting Authority the date and number of generators relocated to the site during each power supply disruption. The report shall be submitted within 30 days of the delivery of the relocated generator(s).
- The permittee shall submit to the Permitting Authority the records maintained in a. through j. above. The report shall be submitted on or before April 1st of the year following the calendar year in which the data was recorded.

Based on the projections, supporting information provided by the applicant, conclusions presented by the applicant, and the emissions summary presented in Table A. above, the Department agrees that the project does not trigger PSD preconstruction review. Since baseline actual to projected actual emissions were not used to determine the applicability status of PSD the permittee is not required to submit annual emission estimates of actual emissions.

Therefore, the project requires a minor air construction permit to relocate and operate up to nine temporary emergency generators for the production of electricity.

Rule Applicability

New Source Performance Standards (NSPS) / National Emission Standards for Hazardous Air Pollutants (NESHAP)

The temporary emergency generators are **not** subject to NSPS 40 CFR 60, Subpart IIII, Stationary Performance Standards for Compression Ignition Engines nor NESHAP 40 CFR 63, Subpart ZZZZ, NESHAP for Stationary Reciprocating Internal Combustion Engines since the engines meet the definition of non road engines and will not be located at the site for longer than 12 months.

NSPS Definition (40 CFR 60, Subpart IIII) - *Stationary internal combustion engine* means any internal combustion engine, except combustion turbines, that converts heat energy into mechanical work and is not mobile. Stationary ICE differ from mobile ICE in that a stationary internal combustion engine is not a nonroad engine as defined at 40 CFR 1068.30 (excluding paragraph (2)(ii) of that definition), and is not used to propel a motor vehicle, aircraft, or a vehicle used solely for competition. Stationary ICE include reciprocating ICE, rotary ICE, and other ICE, except combustion turbines.

NESHAP Definition (40 CFR 63, Subpart ZZZZ)- *Stationary reciprocating internal combustion engine (RICE)* means any reciprocating internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work and which is not mobile. Stationary RICE differ from mobile RICE in that a stationary RICE is not a non-road engine as defined at 40 CFR 1068.30, and is not used to propel a motor vehicle or a vehicle used solely for competition.

Nonroad Engines Definition (40 CFR 1068, GENERAL COMPLIANCE PROVISIONS FOR HIGHWAY, STATIONARY, AND NONROAD PROGRAMS), 1068.30 - *Nonroad engine* means:

(1) Except as discussed in paragraph (2) of this definition, a nonroad engine is an internal combustion engine that meets any of the following criteria:

(i) It is (or will be) used in or on a piece of equipment that is self-propelled or serves a dual purpose by both propelling itself and performing another function (such as garden tractors, off-highway mobile cranes and bulldozers).

(ii) It is (or will be) used in or on a piece of equipment that is intended to be propelled while performing its function (such as lawnmowers and string trimmers).

(iii) By itself or in or on a piece of equipment, it is portable or transportable, meaning designed to be and capable of being carried or moved from one location to another. Indicia of transportability include, but are not limited to, wheels, skids, carrying handles, dolly, trailer, or platform.

(2) An internal combustion engine is not a nonroad engine if it meets any of the following criteria:

(i) The engine is used to propel a motor vehicle, an aircraft, or equipment used solely for competition.

(ii) The engine is regulated under 40 CFR part 60, (or otherwise regulated by a federal New Source Performance Standard promulgated under section 111 of the Clean Air Act (42 U.S.C. 7411)).

(iii) The engine otherwise included in paragraph (1)(iii) of this definition remains or will remain at a location for more than 12 consecutive months or a shorter period of time for an engine located at a seasonal source. A location is any single site at a building, structure, facility, or installation. Any engine (or engines) that replaces an engine at a location and that is intended to perform the same or similar function as the engine replaced will be included in calculating the consecutive time period. An engine located at a seasonal source is an engine that remains at a seasonal source during the full annual operating period of the seasonal source. A seasonal source is a stationary source that remains in a single location on a permanent basis (i.e., at least two years) and that operates at that single location approximately three months (or more) each year. See §1068.31 for provisions that apply if the engine is removed from the location.

4. PRELIMINARY DETERMINATION

The Department makes a preliminary determination that the proposed project will comply with all applicable state and federal air pollution regulations as conditioned by the draft permit. This determination is based on a technical review of the complete application, reasonable assurances provided by the applicant, and the conditions specified in the draft permit. No air quality modeling analysis is required because the project does not result in a significant increase in emissions. Jerry Woosley is the project engineer responsible for reviewing the application and drafting the permit. Additional details of this analysis may be obtained by contacting the project engineer at the Florida Department of Environmental Protection, Northeast District Office, 7525 Baymeadows Way, Suite 200B, Jacksonville, FL 32256-7590, Phone: 904/256-1700.