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November 30, 2007

334864.A1.01

Ms. Tyneshia Tate  
Environmental Engineer  
Stationary Source Permitting Program  
Georgia Department of Natural Resources  
Environmental Protection Division  
Air Protection Branch  
4244 International Parkway, Suite 120  
Atlanta, GA 30354

Subject: Response to Comments  
PSD Application No. 17700 dated September 27, 2007  
Yellow Pine Energy Company, LLC

Dear Ms. Tate:

This letter is written in response to your questions and comments relative to the above referenced permit application submitted by Yellow Pine Energy Company, LLC (Yellow Pine Energy). This letter is written on behalf of our client, Yellow Pine Energy, to address questions posed in your October 19, 2007 letter to Mark S. Sajer of Summit Energy Partners, LLC. Our responses to your comments are provided below:

**GAEPD Comment No. 1** - The application indicates that the emission factors used to calculate potential-to-emit (PTE) pollutant emissions from the fluidized boiler(s) are based on vendor data. However, no such data or explanation is provided for review and verification. Please provide an explanation and available documentation for each of the vendor derived emission factors. Until such data is provided, emission calculations and associated derived emission limits are deemed unacceptable at this time.

**Response to GAEPD Comment No. 1:** The FB boiler(s) emissions were based on information obtained from potential vendors (not considered to be emission guarantees or emission test results), EPA's RACT/BACT/LAER Clearinghouse database, and permit limits for recently permitted power generation facilities including the Longleaf Energy Facility in Georgia. One FB vendor expressly disclaimed the performance information that was provided to Yellow Pine Energy of any type of guarantee, so it was used in the development of the permit application only to determine proposed emission limits. The proposed emission rates for the FB boiler(s) are consistent with the BACT analysis provided in Section 6 of Yellow Pine Energy's permit application, and Yellow Pine Energy believes

that the engineering data presented, including control efficiencies are a reliable estimate. Because of the sensitivity to performance guarantees, and the fact that the boiler has not yet been contracted for purchase, no vendor was willing to provide either emission guarantees or significant emission test information to Yellow Pine Energy. Therefore, emissions from other recently permitted plants of a similar design (including some that are now in operation) were used to provide a basis for comparison with the project's estimated emissions.

**GAEPD Comment No. 2** - The application generally lists fuels and fuel blends which will be combusted by the fluidized boiler(s); it does not explicitly list each possible fuel blend combination which will be combusted. Yellow Pine must clearly and completely review each possible fuel usage and fuel blend combination and evaluate them.

**Response to GAEPD Comment No. 2:** Yellow Pine Energy is proposing to combust the following fuel blends in the fluidized bed boiler(s):

- 100% Biomass (primary fuel),
- 85% Biomass and 15% Bituminous coal (secondary fuel),
- 85% Biomass and 15% Petroleum Coke (secondary fuel), or
- 85% Biomass and 15% Tire-Derived Fuel (secondary fuel)

The emission rates for 100% load for each of these fuel combinations were provided in Table 4-1. The emission rates for the partial load scenarios are shown in the Table 1. With the exception of VOC and SO<sub>2</sub>, estimated criteria pollutant emission rates are the same for all full and partial-load operating scenarios. VOC emissions are estimated to be slightly higher for the 100% biomass scenario, regardless of operating load or fuel mix. SO<sub>2</sub> emissions are expected to be highest when biomass is burned in conjunction with bituminous coal (maximum of 15% heat input).

<b>TABLE 1 SUMMARY OF ESTIMATED MAXIMUM HOURLY EMISSIONS – PARTIAL LOAD (88 MW) YELLOW PINE ENERGY CLAY COUNTY, GEORGIA</b>				
<b>Parameter</b>	<b>100% Biomass</b>	<b>85% Biomass 15% Coal</b>	<b>85% Biomass 15% Pet Coke</b>	<b>85% Biomass 15% TDF</b>
NO <sub>x</sub> (lb/hr)	124	124	124	124
CO (lb/hr)	371	371	371	371
VOC (lb/hr)	24.7	24.4	24.4	24.4
PM-10 (lb/hr)	40.8	40.8	40.8	40.8

TABLE 1 SUMMARY OF ESTIMATED MAXIMUM HOURLY EMISSIONS - PARTIAL LOAD (88 MW) YELLOW PINE ENERGY CLAY COUNTY, GEORGIA				
SO <sub>2</sub> (lb/hr)	74.2	235	216	173

The sulfur content of wood is expected to range from near 0% for yellow pine to approximately 0.10% for western hemlock ("Thermal Data for Natural and Synthetic Fuels", S. Gaur and T. Reed, Marcel Dekker, 1998). A copy of this reference is included as an attachment to this letter. The application is based on wood waste from timber harvesting due to the considerable supply of southern pine in the vicinity of the proposed site. A conservative sulfur content of 0.02% is used for southern pine in the permit application.

The NO<sub>x</sub> emissions shown in the table are based on average emission factors for the fuels indicated. While there may be some additional variability in NO<sub>x</sub> emissions between fuels (due to fuel bound nitrogen for example), these variations are expected to be very small and of little significance. In addition, given that there is only an annual ambient air quality standard for NO<sub>x</sub>, this variability will not materially result in a change in ambient NO<sub>x</sub> impacts.

**GAEPD Comment No. 3** - This application does not address the potential applicability of any of the following regulations to this facility:

3a) 40 CFR Part 60 Subpart Y—Standards of Performance for Coal Preparation Plants:  
 This facility has processes/equipment potentially applicable to this regulation.

3b) 40 CFR Part 60 Subpart OOO—Standards of Performance for Nonmetallic Mineral Processing Plants:  
 This facility has processes/equipment potentially applicable to this regulation.

3c) 40 CFR Part 60 Subpart HHHH—Emission Guidelines and Compliance Times for Coal-Fired Electric Steam Generating Units and Georgia Rule 391-3-1-.02(2)(ttt)—Mercury Emissions from New Electric Generating Units [Clean Air Mercury Rule (CAMR)]:  
 These regulations are potentially applicable to this facility since this facility has the capability of combusting bituminous coal. In accordance with § 60.4102, coal-fired means combusting any amount of coal or coal-derived fuel, alone or in combination with any amount of any other fuel, during any year.

3d) 40 CFR Part 60 Subpart IIII—Standards of Performance for Stationary Compression Ignition Internal Combustion Engines:  
 This facility has processes/equipment potentially applicable to this regulation.

3e) *National Emission Standards for Hazardous Air Pollutants for Source Categories: General Provisions; and Requirements for Control Technology Determinations for Major Sources in Accordance With Clean Air Act Sections, Sections 112(g) - Modifications, Construction, and Reconstruction and 112(j) - Equivalent Emission Limitation by Permit "MACT Hammer"*:  
This facility has processes/equipment potentially applicable to this regulation.

3f) *40 CFR Part 64—Compliance Assurance Monitoring and Georgia Rule 391-3-1-.02(11) Compliance Assurance Monitoring*:  
This facility has processes/equipment potentially applicable to these regulations.

3g) *40 CFR Part 96 Subparts AA through HH—Clean Air Interstate Rule (CAIR) Nitrogen Oxides (NO<sub>x</sub>) Annual Trading Program and Georgia Rule 391-3-1-.02(12)—CAIR NO<sub>x</sub> Annual Trading Program*:  
This facility has processes/equipment potentially applicable to these regulations.

3h) *40 CFR Part 96 Subparts AAA through HHH—CAIR Sulfur Dioxide (SO<sub>2</sub>) Trading Program and Georgia Rule 391-3-1-.02(13)—CAIR SO<sub>2</sub> Annual Trading Program*:  
This facility has processes/equipment potentially applicable to these regulations.

3i) *Georgia Rule 391-3-1-.02(14)—Mercury Annual Trading Program*:  
This facility has processes/equipment potentially applicable to this regulation.

Yellow Pine must address the potential applicability of each of these regulations to the proposed facility.

**Response to GAEPD Comment No. 3:** The potential applicability of each regulation is discussed below:

**Response to GAEPD Comment No. 3a):** This regulation is applicable to coal preparation plants which process more than 200 tons per day by any of the following processes: thermal dryers, pneumatic coal-cleaning equipment (air tables), coal processing and conveying equipment (including breakers and crushers), coal storage systems, and coal transfer and loading systems. The proposed Yellow Pine Energy Facility will have the potential to transfer more than 200 tons of coal per day; therefore, this regulation is applicable to coal processing, conveying, and storage equipment at the Facility and limits visible emissions to 20% opacity or greater.

Specifically, this regulation will apply to the following coal processing, conveying, and storage equipment: unloading operations at the Barge Terminal; conveyors from the Barge terminal to the Active Storage Pile #1; conveyors from the Active Storage Pile #1 to the Day Silo; loading and unloading operations in Transfer Towers #'s 1, 2, 3, and 5; loading, unloading, and storage operations for the Active Storage Pile #1; crushing and screening operations in the Fuel Processing Building #1; and loading, unloading, and storage

operations for the Day Silo. Yellow Pine Energy will comply with the opacity limit by use of the following controls:

- Water Sprays and enclosure on the conveyors and the Active Storage Pile #1,
- Telescopic Chute and water sprays on the Active Storage Pile #1 Load-in, and
- Water sprays, enclosure, and a fabric filter baghouse on the Fuel Processing Building #1 and the Day Silo

**Response to GAEPD Comment No 3b:** This regulation is applicable to fixed or portable nonmetallic mineral processing plants with the following processes: crushers, grinding mills, screening operations, bucket elevators, belt conveyors, bagging operations, storage bins, enclosed truck or railcar loading stations. The proposed Yellow Pine Energy Facility will process sand and limestone for use in the FB boiler(s). Therefore, this regulation is applicable to limestone and sand processing, conveying, and storage equipment at the Facility. It is expected that the Facility will be required to comply with the following emission limits:

- Particulate Matter less than 0.022 gr/dscf (applicable to stack emissions)
- Stack emissions less than 7% opacity
- Fugitive emissions less than 10% opacity
- Crusher emissions less than 15% opacity

Specifically, this regulation will apply to the following limestone and sand processing, conveying, and storage equipment: unloading operations at the Barge Terminal; conveyors from the Barge terminal to the Active Storage Pile #2; conveyors from the Active Storage Pile #2 to the Day Silo; loading and unloading operations in Transfer Towers #'s 1, 2, 3, and 5; loading, unloading, and storage operations for the Active Storage Pile #2; crushing and screening operations in the Fuel Processing Building #1; and loading, unloading, and storage operations for the Day Silo. Yellow Pine Energy will comply with the applicable limits by use of the following controls:

- Water Sprays and enclosure on the conveyors,
- Water Sprays on Active Storage Pile #2,
- Telescopic Chute and water sprays on the Active Storage Pile #2 Load-in, and
- Water sprays, enclosure, and a fabric filter baghouse on the Fuel Processing Building #1 and the Day Silo

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**Response to GAEPD Comment No. 3c:** This regulation establishes the model rule comprising general provisions and the designated representative, permitting, allowance, and monitoring provisions for the State mercury (Hg) Budget Trading Program as a means of reducing national Hg emissions. Hg Budget units are defined as any stationary, coal-fired boiler or stationary, coal-fired combustion turbine serving at any time, since the later of November 15, 1990 or the start-up of the unit's combustion chamber, a generator with nameplate capacity of more than 25 MWe producing electricity for sale. The regulation defines coal-fired as combusting any amount of coal or coal-derived fuel, alone or in combination with any amount of any other fuel, during any year.

The owner or designated representative of an Hg Budget unit that is required to have a Title V operating permit is required to submit to EPD a complete Hg Budget unit permit application at least 18 months before the later of January 1, 2010 or the date on which the Hg Budget unit commences operation. Additionally, the owner or operator of each Hg Budget unit must install all monitoring systems for monitoring Hg mass emissions and individual unit heat input (including all systems required to monitor Hg concentration, stack gas moisture content, stack gas flow rate, and CO<sub>2</sub> or O<sub>2</sub> concentration).

The FB boiler(s) will have the capability to combust bituminous coal up to 15% of the total heat input capacity in the FB boiler(s) therefore, this regulation is applicable. Yellow Pine Energy will comply with the requirements of this regulation by submitting to the EPD a complete Hg Budget unit permit application, installing all required monitoring systems, and completing the associated monitoring and reporting requirements prior to the above-noted date.

**Response to GAEPD Comment No. 3d:** This regulation is applicable to manufacturers, owners, and operators of stationary compression ignition (CI) internal combustion engines (ICE). Specifically, this regulation applies to owners and operators of stationary CI ICE's that commence construction after July 11, 2005 where the stationary CI ICE are: 1) manufactured after April 1, 2006 and are not fire pump engines, or 2) manufactured as a certified National Fire Protection Association (NFPA) fire pump engine after July 1, 2006. Additionally, this regulation applies to owners and operators of stationary CI ICE that modify or reconstruct their stationary CI ICE after July 11, 2005. For the purposes of this subpart, the date that construction commences is the date the engine is ordered by the owner or operator.

This regulation is applicable to Yellow Pine Energy's proposed 450 hp diesel firewater pump engine and the 1500 KW emergency generator. Yellow Pine Energy will comply with the requirements in 40 CFR Part 60 Subpart III that are applicable to specific engines that are installed at the facility. Yellow Pine Energy will monitor and record usage of the diesel firewater pump engine and the 1500 KW emergency generator to track usage compliance.

**Response to GAEPD Comment No. 3e:** Section 112 of the Clean Air Act requires major sources of hazardous air pollutants (HAPs) to meet the maximum achievable control technology (MACT) standards. Under this rule, a major source is defined as one that has the potential to emit 10 tons per year of any HAP or 25 tons per year of any combination of HAPs. Yellow Pine Energy is proposed as a major source of HAP emissions and is subject to MACT regulation, but no final MACT standard has been promulgated. Therefore, an application for case-by-case MACT is necessary. EPD has provided guidance (e-mail from Michelle Keith of EPD to Mark Sajer of Summit Energy Partners dated November 14, 2007) indicating that the Fluidized Bed boiler, as an electric steam utility boiler, would not be subject to the case-by-case MACT requirements. The auxiliary boiler, however is subject to these requirements. Attachment A to this letter contains Yellow Pine Energy's application for a case-by-case MACT determination of the auxiliary boiler based on the above described guidelines.

**Response to GAEPD Comment No. 3f:** The Yellow Pine Energy Facility is subject to the requirements under these regulations. Compliance Assurance monitoring (CAM) regulations are intended to provide reasonable assurance of compliance with emission standards for large emission units that are equipped with pollution control devices. CAM regulations apply, on a pollutant specific basis, to each emissions unit at a major source that meets all of following criteria:

- The unit is subject to an emission limit or standard for the pollutant.
- The unit uses a control device to achieve compliance with the limit or standard.
- The unit has potential pre-control emissions of the pollutant that are equal to or greater than the threshold amount required for the source to be considered major as provided under 40 CFR Part 70 (100 tons per year of a criteria pollutant or 10 tons per year of a HAP).
- The unit is not otherwise exempt.
- Emissions by emission unit were detailed in Appendix A of the permit application.

The CAM regulations do not apply to the following emission limits or standards:

- Limits or standards proposed by EPA after November 15, 1990 pursuant to Section 111 (NSPS) or 112 (HAPs) of the Clean Air Act.
- Limits or standards established pursuant to the acid rain program.
- Limits or standards for which an operating permit specifies a continuous compliance method that does not use an assumed emission reduction factor.

**Response to GAEPD Comment No. 3g:** These regulations are applicable to any stationary, fossil-fuel-fired boiler or stationary, fossil-fuel-fired combustion turbine serving at any time, since the latter of November 15, 1990 or the start-up of the unit's combustion chamber, a generator with nameplate capacity of more than 25 MWe producing electricity for sale. Therefore, these regulations will be applicable to Yellow Pine Energy's FB boiler(s). It is noted that Yellow Pine Energy will be required to obtain NO<sub>x</sub> emission allowances under the Georgia CAIR program for its operations, unless it obtains all of its allowances under the "New Source" category, and in such case, these New Source allowances will be used.

**Response to GAEPD Comment No. 3h:** These regulations are applicable to any stationary, fossil-fuel-fired boiler or stationary, fossil-fuel-fired combustion turbine serving at any time, since the latter of November 15, 1990 or the start-up of the unit's combustion chamber, a generator with nameplate capacity of more than 25 MWe producing electricity for sale. Therefore, these regulations are applicable to Yellow Pine Energy's FB boiler(s).

**Response to GAEPD Comment No. 3i:** This regulation applies to the owner and operator of any source subject to any requirements under 40 CFR Part 60 Subpart HHHH

As discussed in Reponse to GAEPD Comment No. 3c, Yellow Pine Energy has applicable requirements under 40 CFR Part 60 Subpart HHHH. Therefore, this regulation is also applicable. Yellow Pine Energy will comply with the requirements of 40 CFR Part 60 Subpart HHHH as well as the state specific requirements in Georgia Rule 391-3-1-.02(14).

**GAEPD Comment No. 4 -** The permit application indicates that biomass will be combusted at 100 percent heat input capacity or at 85% with a combination of bituminous coal, petroleum coke (Pet Coke), or 95% metal-free tire derived fuel (TDF) at 15%. The application does not indicate that the proposed boiler(s) will have a physical or operational equipment limitation that will not allow these sources to only burn bituminous coal, Pet Coke, biomass, or 95% metal-free TDF at 100% heat input capacity. Nor does the application indicate that there is a physical or operational equipment limitation that will not allow these sources to combust the fossil-derived fuels in combination with biomass at a heat input capacity greater than 15%. Furthermore, the application does not request such imitations. Since this equipment can potentially fire 100% of bituminous coal, Pet Coke, or 95% metal-free TDF, potential calculations should be calculated for each of the fuels and/or fuel blends to demonstrate worst-case emissions for each pollutant unless the applicant is requesting that the 85/15 composition be explicitly stated as a limit in the permit. If requesting such an operational limit, please indicate how compliance will be demonstrated in accordance with Compliance Assurance Monitoring (CAM) or periodic monitoring. Otherwise, estimate worst-case emission for each pollutant at maximum consumption of each fuel and worst-case load for each pollutant including startup and shut down.

**Response to GAEPD Comment No 4:** Yellow Pine Energy requests an operating limit to limit fossil fuel (bituminous coal, petroleum coke, or TDF) to 15% of the heat input capacity

of the fluidized bed boiler(s). Compliance with this operating limit will be demonstrated by monitoring and recording the fuels combusted in the boilers(s), the fuel vendor certifications (for fossil fuels), measured/tested or estimated BTU content of the fuel, fuel sulfur content, and hourly mass input (weigh-belt) into the boiler.

For bituminous coal, Pet Coke, and TDY, Yellow Pine Energy will request quality specifications (heat content and sulfur content) from fuel suppliers for each shipment. Random testing will be conducted to verify supplier data. Because of the random nature of the physical properties of biomass that will be burned in the boiler(s), and the variability of sources from which it will be obtained, testing of this fuel source is expected to be done on a periodic sampling basis by the vendors over the contract term. Typically, such testing is for energy content, size, moisture and inert materials, which are necessary to quantify its heat content for combustibility purposes and reprocessing requirements (i.e. to sift out inert materials such as dirt).

**GAEPD Comment No. 5:** The application indicates the fluidized boiler(s) are not subject to Georgia Rule 391-3-1-.02(2)(d)4 since the proposed equipment will burn a combination of biomass/fossil fuel mixture. Part (iv) of this regulation provides a method to determine nitrogen oxides (NO<sub>x</sub>) emissions when different fuels are burned simultaneously in any combination the applicable standard. Since the boiler(s) can potentially fire any of the applicable fuels independently or simultaneously (as discussed on Comment 4), this regulation is potentially applicable.

**Response to GAEPD Comment No. 5:** Georgia Rule 391-3-1-.02(2)(d)4 limits NO<sub>x</sub> emissions from any fuel-burning equipment equal to or greater than 250 million BTU per hour of heat input that is constructed or extensively modified after January 1, 1972, equal to or exceeding the following:

- (1) When firing coal--0.7 pounds of NO<sub>x</sub> per million BTUs of heat input;
- (2) When firing oil--0.3 pounds of NO<sub>x</sub> per million BTUs of heat input;
- (3) When firing gas--0.2 pounds of NO<sub>x</sub> per million BTUs of heat input;
- (4) When different fuels are burned simultaneously in any combination the applicable standard, expressed as pounds of NO<sub>x</sub> per million BTUs of heat input, shall be determined by proration. Compliance shall be determined by using the following formula:

$$\frac{x(0.20) + y(0.30) + z(0.70)}{x + y + z}$$

Where:

x = percent of total heat input derived from gaseous fuel;

y = percent of total heat input derived from oil;

z = percent of total heat input derived from coal.

The Rule does not provide limits for biomass, petroleum coke, or TDF. Yellow Pine Energy will only use oil and propane as secondary fuels during start-up. Therefore, the calculated NO<sub>x</sub> limits when firing coal, coal/oil, and coal/propane are 0.7, 0.48, and 0.42 lb/MMBtu of heat input, respectively. However, this analysis would not fairly predict emissions due to the lack of reliable factors for biomass and the other lesser fuel inputs. The calculated NO<sub>x</sub> limits are greater than the limit requested by Yellow Pine Energy and these limits are substantiated via other means as noted in Comment 1 above.

**GAEPD Comment No. 6** - The facility has not presented any definition of startup, shutdown, or malfunction of applicable equipment and how the facility proposes to comply with applicable PSD limits during these times. If Yellow Pine does not believe that the proposed equipment can comply with applicable PSD limits during startup, shutdown, or malfunction, then it must propose alternative emission limits during these timeframes.

**Response to GAEPD Comment No. 6:** The Yellow Pine Energy facility is being developed as a base-load facility that will be designed to run continuously and to provide power on a contract basis. The plant is expected to have two scheduled startup and shutdown sequences per year, once in the spring and once in the fall. Each of these events will be associated with scheduled maintenance and the Facility will be shut down for a total of four (4) weeks per year. A normal cold-start event can last up to approximately 8 to 14 hours from initial firing, depending on fuel and other conditions, until approximately 30% load (33 MWs) is achieved. This time frame may be shortened in some instances by using the auxiliary boiler to pre-heat the steam turbine. Escalation to 100% load could require an additional two to four hours beyond the startup period. Emissions of NO<sub>x</sub>, CO, VOC, SO<sub>2</sub>, and PM-10 are expected to vary during the startup procedure. Information regarding emissions during startup was requested from a proposed manufacturer, who provided information on 100% biomass firing, and is summarized below for the proposed firing rate. Yellow Pine Energy expects the startup of the FB boiler(s) on 100% biomass to be the worst case startup scenario for NO<sub>x</sub>, CO, and PM-10 due to the variable moisture content of biomass and the potential for incomplete combustion processes to occur.

NO<sub>x</sub> emissions can be expected to range from 0 to 71 lb/hr during the first four hours of startup, followed by emissions in the range of 71 lb/hr to 246 lb/hr during the next four hours, and decreasing to 132 lb/hr during the next two hours. Approximately ten hours after startup, the boiler should reach normal operating load and NO<sub>x</sub> emissions should remain below the proposed maximum normal operating emission rate specified in the permit application (153 lb/hr). Given that there are no short-term ambient air quality standards for NO<sub>x</sub>, these infrequent excursions above the requested NO<sub>x</sub> limits during startup are not expected to have a material or measurable impact on ambient air quality at

any location. Additionally, any period of shutdown will involve much longer periods when the plant is not in operation, with no emissions from the boiler(s).

CO emissions are expected to range from 0 to 12 lb/hr during the first four hours of startup, followed by emissions in the range of 13.3 lb/hr to 105 lb/hr during the next four hours, and then followed by emissions in the range of 105 lb/hr to 198 lb/hr during the next two hours. Approximately ten hours after startup, the boiler should reach normal operating load and CO emissions will remain below the proposed maximum hourly emission rate specified in the permit application (459 lb/hr).

SO<sub>2</sub> emissions should be very low at all times due to the very low sulfur content in the biomass that will be introduced into the boiler. The emissions of SO<sub>2</sub> are dependent only on the amount of fuel combusted, regardless of whether the boiler is in startup or steady state operating mode. Startup will normally be initiated/supplemented with fuel oil and/or propane, but these periods will be very short and infrequent. When these fuels are used, the SO<sub>2</sub> emissions will be directly related to the sulfur content of those fuels. During this initial startup period on fuel oil, SO<sub>2</sub> emissions are expected to range from 0 to 4 lb/hr, assuming an 80 percent scrubber efficiency.

As with SO<sub>2</sub>, PM-10 emissions are expected to be a function of the amount of fuel combusted, regardless of operating condition. PM-10 emissions will not exceed the maximum hourly emission rate in the permit application (50.5 lb/hr).

During boiler shutdown, emissions are expected to decrease with boiler load and be relatively proportional to the amount of fuel combusted in the boiler(s).

Although only two annual boiler startup/shutdown sequences are planned, it is possible that the facility could experience an unexpected process malfunction or air pollution control process or equipment failure resulting in an increase in short-term emissions. When this occurs, Yellow Pine Energy will take actions to repair the affected equipment as soon as possible to minimize any excess emissions. If the malfunction can not be repaired within a reasonable time frame, the process will be shut down until such time as the malfunction can be repaired. Yellow Pine Energy will report all such malfunctions to EPD in accordance with the terms of the permit and all deviations from any applicable requirements that are associated with any increase in emissions will also be reported to EPD.

**GAEPD Comment No. 7** - The auxiliary boiler emission calculations indicate that the boiler will only be operated 250 hours per year. However, this application does not request such a limitation. Therefore, PTE calculations should be calculated for each of the proposed fuels to demonstrate worst-case emissions for each PSD pollutant and at maximum heat input capacity operating 8,760 hours per year or a request for a 250 hour per year operating limit should be requested in writing along with proposed monitoring and record keeping to ensure compliance.

**Response to GAEPD Comment No. 7:** Yellow Pine Energy requests a limit of 250 operating hours per year for the auxiliary boiler. Compliance with this operating limit will be demonstrated by monitoring and recording the boiler usage. The Facility's maximum expected annual emissions are shown on page 4-4 of the permit application and are based on the auxiliary boiler operating 250 hours per year.

**GAEPD Comment No. 8 -** The application indicates that fugitive PTE emissions are based on the facility combusting 100% biomass. However, this assumption may not represent worst-case emissions. Potential calculations should be calculated for each of the proposed fuels and fuel blends to demonstrate worst-case emissions for each pollutant.

**Response to GAEPD Comment No. 8:** Worst case fugitive emissions are included in the Facility's maximum expected annual PM-10 emissions on page 4-4 of the permit application. Worst case fugitive emissions are expected to occur when the Facility is firing 100% biomass because the amount of biomass being moved is proportionally greater than the fossil fuels due to their relative heat value per pound. Maximum expected annual point, fugitive, and total PM-10 emissions are summarized in Table 2 for each operating scenario.

<b>TABLE 2            SUMMARY OF MAXIMUM EXPECTED ANNUAL POINT, FUGITIVE, AND TOTAL PM-10 EMISSIONS            YELLOW PINE ENERGY            CLAY COUNTY, GEORGIA</b>				
	<b>FB Boiler (100%            Biomass),            Auxiliary Boiler<sup>1</sup>            (lb/yr)</b>	<b>FB Boiler (85%            Biomass, 15%            Coal), Auxiliary            Boiler<sup>1</sup>            (lb/yr)</b>	<b>FB Boiler (85%            Biomass, 15% Pet            Coke), Auxiliary            Boiler<sup>1</sup>            (lb/yr)</b>	<b>FB Boiler (85%            Biomass, 15%            TDF), Auxiliary            Boiler<sup>1</sup>            (lb/yr)</b>
Fugitive PM-10	1,622	1,522	1,522	1,522
Point PM-10	442,574	442,574	442,574	442,574
Total PM-10	444,196	444,096	444,096	444,096
<sup>1</sup> Auxiliary boiler is limited to 250 operating hours per year.				

**GAEPD Comment No. 9 -** The State Implementation Plan (SIP) application forms indicate that there will be one fluidized bed boiler. However, the application narrative indicates the potential for the installation of two boilers to achieve the desired heat input capacity. If Yellow Pine has determined that it can obtain one boiler or is required to obtain two boilers, it should inform the Division and perform applicable reviews accordingly.

**Response to GAEPD Comment No. 9:** Depending on the vendor, Yellow Pine Energy may purchase one or two FB boilers for the project. If two boilers are used, they will exhaust into a single pollution control train and single exhaust stack and will be operated together in

order to meet the electrical supply commitments. The FB boilers will not be operated individually or at partial loads less than 80 percent of its base load except during start-up and shutdown. The SIP application forms for the one FB scenario were in the permit application and forms for two FB boiler scenarios are included as Attachment B.

**GAEPD Comment No. 10** - The SIP application forms do not indicate a proposed capacity for the ammonia storage tank or fly ash silo. Please provide this information.

**Response to GAEPD Comment No. 10:** Yellow Pine Energy is proposing to install a 25,000 gallon ammonia storage tank (19% aqueous ammonia) and 160,000 cubic feet fly ash silo (approximately 50 foot diameter x 82 feet tall).

**GAEPD Comment No. 11** - The SIP application forms do not indicate the capacity of the fire pump or emergency generator. In addition, very limited information is provided concerning the fuel process buildings. Please provide this information.

**Response to GA EPD Comment No. 11:** Yellow Pine Energy is proposing to install a 1,500 KW emergency generator and two 450 hp diesel firewater pump engines. The revised SIP application forms are included as Attachment B.

Fuel Processing Building 1 is an enclosed building that vents under negative pressure through fabric filters. Wood waste is screened, and oversized material is cut in a wood hogger (hammer mill) and returned to the screens. Accepted material is screened for metals (magnets above the conveyor) and conveyed to power plant via an inclined, covered conveyor. The building will also contain a coal/Pet Coke crusher and screening system and a limestone crushing/screening system. Accepted materials are screened for metals and conveyed to the power plant via conveyor.

Fuel Processing Building 2 is an enclosed building that vents under negative pressure through fabric filters. Wood waste is screened, and oversized material is cut in a wood hogger (hammer mill) and returned to the screens. Accepted material is screened for metals (magnets above the conveyor) and conveyed to the active storage area.

**GAEPD Comment No. 12** - The permit application indicates a maximum sulfur content for each of the proposed fuels, however there is no information provided indicating how the facility will guarantee and/or determine that the sulfur content for each batch of fuel burned meets the proposed fuel sulfur content limitations. Please provide this information.

**Response to GAEPD Comment No. 12:** For bituminous coal, Pet Coke, and TDF, Yellow Pine Energy will request quality specifications from fuel suppliers for each shipment. Random testing will be conducted to verify supplier data. Yellow Pine Energy does not anticipate testing biomass for sulfur content due to its low sulfur content. Fuels not meeting contractual specifications will be rejected.

Compliance will be demonstrated by maintaining a log of analytic results by fuel and shipment. It should be noted the sulfur content of biomass is significantly less than that of fossil fuel and as a result, Yellow Pine Energy does not anticipate a need to analyze biomass. Please see Response to GAEPD Comment No. 2 for details concerning the expected sulfur content of biomass.

**GAEPD Comment No. 13** - The facility indicates that the acrolien emission factor is based on a November 1, 2005 memo. Please provide this document for review.

**Response to GAEPD Comment No. 13:** The November 1, 2005 Memorandum referenced in the application is included as Attachment C.

**GAEPD Comment No. 14** - The combustion of the proposed fuels may result in the emission of fluorides, sulfuric acid mist, hydrogen sulfide, total reduced sulfur (including H<sub>2</sub>S), and reduced sulfur compounds (including H<sub>2</sub>S). Yellow Pine must calculate emissions of these PSD-regulated pollutants and evaluate PSD applicability to them.

**Response to GAEPD Comment No. 14:** The emissions of fluorides, sulfuric acid mist, hydrogen sulfide, total reduced sulfur (including H<sub>2</sub>S), and reduced sulfur compounds (including H<sub>2</sub>S) at maximum load are summarized in Table 3.

TABLE 3 SUMMARY OF PROPOSED ALLOWABLE EMISSIONS OF HF, H <sub>2</sub> SO <sub>4</sub> , H <sub>2</sub> S, AND TRS YELLOW PINE ENERGY CLAY COUNTY, GEORGIA				
	FB Boiler (100% Biomass), Auxiliary Boiler <sup>1</sup>	FB Boiler (85% Biomass, 15% Coal), Auxiliary Boiler <sup>1</sup>	FB Boiler (85% Biomass, 15% Pet Coke), Auxiliary Boiler <sup>1</sup>	FB Boiler (85% Biomass, 15% TDF), Auxiliary Boiler <sup>1</sup>
HF (tons/yr)	0	3.20E-03	2.53E-02	0
H <sub>2</sub> SO <sub>4</sub> (tons/yr)	40.2	67	67	67
H <sub>2</sub> S (tons/yr)	0	0	0	0
Total Reduced Sulfur, including H <sub>2</sub> S (tons/yr)	0	0	0	0

<sup>1</sup> Auxiliary boiler is limited to 250 operating hours per year.

**GAEPD Comment No. 15** - In accordance with § 52.21(b)(1)(i) – Major stationary source means: Any of the following stationary sources of air pollutants which emits, or has the potential to emit, 100 tons per year or more of any regulated New Source Review (NSR) pollutant: 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 (with thermal dryers), 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 (which does not include ethanol production facilities that produce ethanol by natural fermentation included in North American Industry Classification System (NAICS) codes 325193 or 312140), 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.

In accordance with § 52.21(c) (iii), fugitive emissions of a stationary source shall not be included in determining whether it is a major stationary source, unless the source belongs to one of the categories of stationary sources listed above. Yellow Pine is considered a fossil fuel-fired steam electric plant of more than 250 million British thermal units per hour heat input. In addition, Yellow Pine will operate fossil-fuel boilers (or combinations thereof) totaling more than 250 million British thermal units per hour heat input. Yellow Pine must include fugitive emissions in its potential emissions totals and applicable modeling to demonstrate compliance with applicable emission limits.

**Response to GAEPD Comment No. 15:** Table 2 summarizes the Facility's maximum expected annual fugitive, point, and total PM-10 emissions for each operating scenario. The dispersion modeling analysis in Section 7 of the PSD permit application uses maximum proposed hourly emission rates, including the estimated fugitive emission rates, as specified in the permit application.

**GAEPD Comment No. 16 -** In accordance with § 52.21(c)(1)(ii), a major source that is major for volatile organic compounds or NO<sub>x</sub> shall be considered major for ozone. Yellow Pine must address PSD applicability to ozone emissions.

**Response to GAEPD Comment No. 16:** 40 CFR 52.21(b)(1)(ii) states "A major source that is major for volatile organic compounds or NO<sub>x</sub> shall be considered major for ozone. The Yellow Pine Energy Facility will have maximum expected VOC and NO<sub>x</sub> emissions greater than the major source threshold for both pollutants. Therefore, the Yellow Pine Energy Facility is considered major for ozone. Ozone emissions are discussed on page 5-6 and 7-3 of the permit application. Additionally, data for the closest ozone monitors to the proposed Facility are summarized in Table 5-2. It is also noted that EPA has provided guidance on this matter (e-mail from Tyneshia Tate to Mark Sajer dated November 13, 2007) indicating that the BACT analysis should suffice to address PSD applicability for Ozone.

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**GAEPD Comment No. 17** - Concerns with the calculated emissions and variable proposed fuel usage and composition as discussed above cause the modeled emission rates for applicable pollutants to be unacceptable at this time.

**Response to GAEPD Comment No. 17:** The dispersion modeling analysis was conducted using the worst case (based on operating scenario) maximum hourly emission rates for each pollutant. Yellow Pine Energy feels this approach is conservative and no PSD increment or NAAQS will be threatened or exceeded as a result of the proposed Facility.

**GAEPD Comment No. 18** - The visibility, soil and vegetation analysis is based on the modeled emission rates (i.e. modeled concentrations were below the applicable National Ambient Air Quality Standards). Until the modeled emission rates are deemed acceptable, the visibility, soil and vegetation analysis is deemed unacceptable at this time.

**Response to GAEPD Comment No. 18:** Please see Response to GAEPD Comment No. 17.

**GAEPD Comment No. 19** - The Best Achievable Control Technology (BACT) analysis has yet to be completed at this time. However, please revise "top down" BACT analysis for NO<sub>x</sub> to include Xonon® as a possible NO<sub>x</sub> control technique.

**Response to GAEPD Comment No. 19:** Xonon® is a catalytic technology that combusts fuel flamelessly. The Xonon combustion system is completely contained within the combustion chamber of the gas turbine. Xonon system completely combusts fuel to produce a high-temperature mixture typically about 1300 °C. Dilution air added to shape the temperature profile required at the turbine inlet.

At this time, Xonon is only available for natural gas fueled applications. The Yellow Pine Energy Facility is being built as a renewal energy project and the use of natural gas as a primary fuel would not be consistent with the project's objective. Therefore, Xonon is technically infeasible and will not be considered further for the Yellow Pine Energy Facility.

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On behalf of Yellow Pine Energy, we request that you provide us with written acknowledgement that you have received this response, as well as concurrence that the information provided herein adequately addresses the questions and comments. If you have any questions regarding the information provided herein or should you require any additional information, please contact me at (678) 530-4366 or by e-mail at [rvaughn1@ch2m.com](mailto:rvaughn1@ch2m.com), or Mark Sajer at Summit Energy Partners at (908) 918-9151 or by e-mail at [mark.sajer@sep-llc.com](mailto:mark.sajer@sep-llc.com).

Sincerely,

CH2M HILL



Ronald Vaughn  
Project Engineer

YellowPineEnergyLlc\334864\Corr\Response to EPD Comments  
c: Mark S. Sajer/Summit Energy Partners, LLC  
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