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January 10, 2008

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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 December 18, 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 limestone will be injected into the fluidized bed boiler(s) when firing any fuel other than biomass and that sand will be injected when firing biomass only. However, the application does not provide any proposed monitoring and/or record keeping ensuring compliance with such operational flexibility.

**Response to GAEPD Comment No. 1:** Yellow Pine Energy will monitor and record the amount of sand used during periods of 100% biomass firing and the amount of sand/limestone used during periods of biomass/fossil fuel blend firing fed to the fluidized bed boilers(s). The amount of sand and sand/limestone fed from the day silos to the fluidized bed boilers(s) will be recorded on an hourly basis (weigh-belt).

**GAEPD Comment No. 2** - Emission calculations indicate that the *California Air Toxics Emission Factors Search Result – Coke in Fluidized Bed Combustor* was used to estimate potential emissions resulting from the combustion of petroleum coke (Pet Coke). A review of the emission factors obtained from this information indicates that Yellow Pine used the *Mean Emission Factor* provided. Yellow Pine must conservatively estimate potential emissions,

and therefore should recalculate emissions resulting from the combustion of Pet Coke using the *Maximum Emission Factors* available.

**Response to GAEPD Comment No. 2:** The proposed emissions during biomass/Pet Coke firing have been calculated using the *Maximum Emission Factors* from the California Air Resources Board and are include in Attachment A. The emission rates for chrysene and selenium are greater than the values in Table 7-10 of the permit application report. Therefore, Table 7-10 has been revised to include the higher values and is also included in Attachment A. The higher values did not change the results documented in the permit application report, which indicated that the maximum predicted ambient concentrations of all toxics are below their respective acceptable ambient concentrations for each air toxic and for each applicable averaging period.

**GAEPD Comment No. 3** - Yellow Pine Energy used AP-42 information to estimate cooling tower emissions and drift removal efficiency. AP-42 is not suitable for portraying the characteristics of current cooling tower designs. Yellow Pine should use project-specific data such as drift elimination guarantees/specifications provided by the vendor.

**Response to GAEPD Comment No. 3:** Yellow Pine does not have any project specific data or guarantees from vendors as it has not commenced contracting for the cooling towers. As a result, Yellow Pine Energy used AP-42 emission factors to conservatively estimate cooling tower emissions and using this more conservative (i.e., higher emissions) data does not adversely affect any National Ambient Air Quality Standard or PSD Increment. Additionally, the recently permitted Longleaf Energy Facility used the same drift emission factor. Nonetheless, Yellow Pine Energy understands that a permit condition will require the use of drift elimination technology, which is expected to result in emissions lower than derived using AP-42 data.

**GAEPD Comment No. 4** - One Best Achievable Control Technology (BACT) option that should be evaluated is restricting the project to use of biomass fuel only. Since the project is apparently designed for 100% biomass as well as for use of fuel blends, the option of restricting the project just to biomass would not be a re-design of the project and would therefore be an appropriate BACT option.

**Response to GAEPD Comment No 4:** The proposal to eliminate supplementary fuels is not feasible from a safety perspective and Good Utility Practices standard to ensure the safe and reliable operation of the fluidized boiler(s). During start-up and in cases of wet or low BTU content fuel, a supplemental fuel is required to stabilize the boiler combustion and prevent an explosion. Therefore, combustion of 100% biomass in the fluidized bed boiler(s) on a *continuous* basis and in all cases of operational safety cannot be considered a feasible option. As a result, Yellow Pine's BACT analyses eliminated this option. As discussed on page 2-4 of the permit application report, supplemental fuel of up to 15% based on heat content, or approximately 5% on a weight basis will be needed.

**GAEPD Comment No. 5:** Particulate matter with an aerodynamic diameter of 2.5 microns or less ($PM_{2.5}$), which will be emitted from this facility, is a regulated New Source Review (NSR) pollutant with a National Ambient Air Quality Standard (NAAQS). In accordance with Appendix S of 40 CFR 51.166, all particulate matter with an aerodynamic diameter of 10 microns or less ($PM_{10}$) may be assumed to be $PM_{2.5}$. Yellow Pine must amend its application to explicitly quantify $PM_{2.5}$ (even if this quantity is equal to $PM_{10}$ emissions), to explicitly describe how compliance with NAAQS for $PM_{2.5}$ is a comparison of modeling results of $PM_{10}$ evaluated against the $PM_{10}$ NAAQS, and to explicitly state whether this method of evaluation shows compliance with the $PM_{10}$ and thus the $PM_{2.5}$ standard, and why.

**Response to GAEPD Comment No. 5:** Yellow Pine Energy proposes to use PM-10 air quality standards as surrogates for PM-2.5 air quality standards. As presented in Tables 7-1 and 7-2 of the permit application report, the maximum predicted concentrations attributable to the Facility's proposed PM-10 emissions are less than the significant impact levels for the 24-hour and annual averaging periods. Therefore, Yellow Pine Energy believes the dispersion modeling analysis presented in the permit application report is protective of both the current PM-10 National Ambient Air Quality Standards and the new PM-2.5 National Ambient Air Quality Standards.

Yellow Pine Energy proposes to use a conservative approach and assume all PM-10 emissions are PM-2.5. The table of maximum expected annual emissions (page 4-4 of permit application report) has been updated and the pertinent permit application forms are included as Attachment B.

**GAEPD Comment No. 6 -** On April 2, 2007, the U.S. Supreme Court issued its decision in *Commonwealth of Massachusetts v. EPA*. In this decision, the court ordered EPA to reconsider its conclusion that it should not regulate greenhouse gases from new motor vehicles. Yellow Pine should address greenhouse gas emissions resulting from the project and how it proposes to curtail them and their potential environmental impact.

**Response to GAEPD Comment No. 6:** Yellow Pine as a renewable energy plant is considered to be "carbon neutral" or "greenhouse gas neutral" as carbon dioxide is adsorbed by trees as they grow, and the use of tree residuals for fuel, produces carbon dioxide, which continues the renewable cycle as successive tree grow adsorbs the carbon dioxide. The proposed Facility will emit greenhouse gases, primarily carbon dioxide. Greenhouse gases also include methane, nitrous oxide, and fluorinated gases. The use of good combustion controls and SNCR and lack of much fluorine in the fuel stream eliminates or substantially eliminates these latter three gases.

Carbon dioxide emissions may potentially be controlled by using geologic sequestration. Geologic sequestration is a type of carbon dioxide capture and storage process and is a promising technology for stabilizing atmospheric greenhouse gas concentrations. Instead of

releasing carbon dioxide to the atmosphere, geologic sequestration involves separating and capturing carbon dioxide from an industrial or energy-related source, transporting it to a storage location, and injecting it deep underground for long-term isolation from the atmosphere.

The Department of Energy (DOE) is currently sponsoring a number of small-scale carbon dioxide pilot projects designed to learn more about how carbon dioxide behaves in the sub-surface and answer practical technical questions on how to design and operate geologic sequestration projects. Additionally, DOE's full-scale project is not expected to be operational until 2012. Therefore, this technology is not mature and will not be considered further for the Yellow Pine Energy Facility.

Currently, there are no Federal or State of Georgia requirements to control greenhouse gases. However, it is likely that future regulations will consider biomass renewable energy as "neutral" in respect of greenhouse gases. The Yellow Pine Facility is being developed as a Renewable Energy project per the Governor's Executive Order 02. 28. 06. 02, House Bill 1018 (renewable fuel tax exemption) and the Georgia Renewable Accreditation Standards per the Georgia Public Service Commission's "Green Power" rules.

**GAEPD Comment No. 7 -** Yellow Pine must finalize the number of fluidized boilers that will be included in the final design for this project. A review of Yellow Pine's top-down BACT analysis cannot be performed at this time for the fluidized boiler(s) until this issue is resolved. In addition, modeling at various operating loads for the multi-fuel boiler(s) cannot be completed until the total number of boilers and their respective sizes are determined.

**Response to GAEPD Comment No. 7:** This issue was discussed in Yellow Pine Energy's November 30, 2007 Response to Comments (Response to GAEPD Comment No. 9). Depending on the vendor, Yellow Pine Energy may purchase one or two fluidized bed 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 fluidized bed boilers will not be operated individually or at partial loads less than 80 percent of its base load except during start-up and shutdown. As a result, the BACT analysis can be performed and none of the emission data or any of the applicable standards produce different results, nor are any new or different standard applicable.

For example, because of the single pollution control train, the cost of particulate matter and sulfur dioxide controls will be the same for each scenario. The cost of the Selective Non-catalytic Reduction (SNCR) system will be slightly higher for the two fluidized bed boiler scenario, however the cost of additional duct work and ammonia supply is so small as to be insignificant when compared to the total installed capital cost of the SNCR systems. Please reconsider your position given the above and progress with the BACT review.

**GAEPD Comment No. 8 -** This application does not address the potential applicability of any of the following regulations to this facility.

8a) *40 CFR Part 60 Subpart Eb—Standards of Performance for Large Municipal Waste Combustors for Which Construction is Commenced After September 20, 1994 or for Which Modification or Reconstruction is Commenced After June 19, 1996*:
This facility has processes/equipment potentially applicable to this regulation.

8b) *40 CFR Part 60 Subpart AAAA—Standards of Performance for Small Municipal Waste Combustion Units for Which Construction is Commenced After August 30, 1999 or for Which Modification or Reconstruction is Commenced After June 6, 2001*:
This facility has processes/equipment potentially applicable to this regulation.

8c) *40 CFR Part 60 Subpart CCCC—Standards of Performance for Commercial and Industrial Solid Waste Incineration Units for Which Construction Is Commenced After November 30, 1999 or for Which Modification or Reconstruction Is Commenced on or After June 1, 2001*:
This facility has processes/equipment potentially applicable to this regulation.

8d) *40 CFR Part 63 Subpart DD—National Emission Standards for Hazardous Air Pollutants from Off-Site Waste and Recovery Operations*:
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. 8a:** Yellow Pine Energy is proposing to combust biomass as the primary fuel for the fluidized bed boiler(s). Biomass consists of wood wastes in chip or shredded form from timber harvesting, pre-commercial thinning of forest plantation stands, harvesting non-commercial, dead or deformed species for fuel purposes and land clearing activities (limbs, tops, stumps and non-commercial trees), and may also include peanut hulls, pecan shells, cotton stalks, lumber and pallet wood wastes (unpainted/untreated only) and similar woody biomass. Secondary fuels include coal, Pet Coke, and tire-derive fuel. The use of municipal solid waste was not applied for nor is the plant design suitable for municipal wastes. Of the supplemental fuel types, only tire derived fuels could possibly be considered a municipal solid waste. However, even if one were to assume TDF is a municipal solid waste, the maximum fossil fuel input to the fluidized bed boiler(s) will be 15% by BTU/hour heart input, which given the BTU content of tire-derived fuel, translates into a maximum daily input rate of 166 ton/day, is less than the 250 ton/day threshold in the regulation. Therefore, the proposed Facility is not subject to *40 CFR Part 60 Subpart Eb*.

**Response to GAEPD Comment No. 8b:** As discussed above, the fluidized bed boiler(s) will combust as a secondary fuel a single-item waste stream of tire-derived fuel and meets the requirements for an exemption (40 CFR 60.1020(d)). Therefore, the proposed Facility is not

subject to *40 CFR Part 60 Subpart AAAA*. Yellow Pine Energy will comply with requirement in the regulation to notify the EPA of the exemption.

**Response to GAEPD Comment No. 8c:** The fluidized bed boiler(s) is not a commercial and industrial solid waste incineration unit. Therefore, *40 CFR Part 60 Subpart CCCC* is not applicable.

**Response to GAEPD Comment No. 8d:** Yellow Pine Energy will not receive off-site material (waste, used oil, used solvents) as defined in 40 CFR 63.680(b)(1)(i) though (b)(1)(iii). Therefore, *40 CFR Part 63 Subpart DD* is not applicable.

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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.

Yellow Pine Energy is greatly concerned about comment 7 vis-à-vis no work on the BACT analyses. By making one or two boilers operational equivalents, having a single pollution control system, stack and testing/monitoring, the same pollution control cost comparisons (with an immaterial difference in ammonia piping costs between one SNCR or two) and all standards and rules being the same for either one boiler or two, we ask that you reconsider and progress with work on the BACT analyses and air emission model analyses. As discussed, Yellow Pine is subject to meeting construction start and in-service date commitments to Georgia Power Company and others, and as a result, timely progress on this permit application is greatly appreciated.

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, or Mark Sajer at Summit Energy Partners at (908) 918-9151 or by e-mail at 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
George Howroyd/CH2M HILL