5.0 Applicable Regulations

5.1 Applicable Pollutants

Expected emissions rates from the proposed Facility for the FB boiler(s), auxiliary boiler, materials handling, and cooling tower systems were previously discussed and summarized in Section 4. The maximum expected annual emissions from the Facility of NO_X, CO, VOC, PM-10, and SO_2 will each exceed the 100 tons/year PSD threshold. Therefore, the Facility will constitute a major source of emissions under the regulations governing PSD (40 CFR 52.21). As a result, an ambient air quality impact analysis and demonstration of BACT are required for each of these pollutants.

5.2 Ambient Air Quality Impact Analysis Requirements

The ambient limits with which the proposed project must comply are the NAAQS for SO_2, NO_2, CO, and particulate matter (PM-10/PM-2.5) (40 CFR 50 and Georgia Rule 391-3-1-.02(4)), and the PSD Class II and Class I increments for SO_2, PM-10, and NO_2 (40 CFR 52). These limits are summarized in Table 5-1. There are no ambient air quality standards, PSD increments, or significant impact levels defined for VOC emissions since VOC is not a modeled pollutant. Dispersion modeling analyses of the proposed Facility emissions (see Section 7) demonstrate that the Facility will be in compliance with all state and federal ambient air quality regulations noted above.

Also listed in Table 5-1 are the "significant" impact levels for each pollutant. The impact area or the "Radius of Impact" (ROI) for the proposed Facility is defined as the area within a circle from the source of emissions to the distance at which the emissions from the Facility no longer produce a predicted significant impact for each pollutant. When the ambient concentrations at a particular location attributable to a given source are below the significant impact levels, the impact of the source is considered to be insignificant. Initial dispersion modeling analysis of the Facility indicated that only SO_2 will exceed the significance level, and all other pollutants listed will not exceed significant impact levels.

TABLE 5-1
Applicable Ambient Air Quality Limits and Significant Impact Levels
(Concentrations in μg/m³)

Pollutant and Averaging Period	National Ambient Air Quality Standards		PSD Increments		Significant Impact Level
	Primary	Secondary	Class II	Class I	
SO_2					
3-hour	-	1300[a]	512[a]	25[a]	25
24-hour	365[a]	-	91[a]	5[a]	5
Annual	80	-	20	2	1
NO_2					
Annual	100	100	25	2.5	1
CO					
1-hour	40,000[a]	-	[b]	[b]	2,000
8-hour	10,000[a]	-	[b]	[b]	500
PM-10[c]					
24-hour	150[d]	150[d]	30	8	5
Annual[e]	50	50	17	4	1
PM-2.5[f, g]					
24-hour	35[h]	35[h]	[b]	[b]	[b]
Annual	15[i]	15[i]	[b]	[b]	[b]

Notes:
[a] Concentrations not to be exceeded more than once per year, on an average basis.
[b] No increments applicable.
[c] Particulate matter with aerodynamic diameters less than or equal to 10 μm.
[d] Not to be exceeded more than once per year on average over 3 years.
[e] On December 17, 2006, the U.S. EPA revoked the annual PM-10 standard.
[f] Particulate matter with aerodynamic diameters less than or equal to 2.5 μm.
[g] The U.S. EPA has stipulated that, until PM-2.5 significance levels and increments (and sufficient factors) are established, PM-10 air quality standards will act as surrogates for PM-2.5.
[h] To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 μg/m^3.
[i] To attain this standard, the 3-year average of the weighted annual mean PM-2.5 concentrations from single or multiple community-oriented monitors must not exceed 15 μg/m^3.

5.3 Emission Limits and Performance Standards

5.3.1 FB Boiler

New source performance standards (NSPS) have been developed by the U.S. EPA for electric utility steam generating units (40 CFR 60, Subpart Da). These NSPS impose maximum allowable emission limitations on PM, NO_X and SO_2 emissions from steam

generating units with heat input ratings of greater than 250 MMBtu/hr. For the proposed steam generating unit, Subpart Da specifies that the maximum emissions will be less than:

PM 0.03 lb/MMBtu
99.9% reduction
20% opacity (6-minute average, except for one 6-minute period per hour of not more than 27 percent opacity)

SO_2 1.4 lb/MWh
or
95% reduction
Note: Standard is based on a 30-day rolling average basis.

NO_X 0.60 lb/MMBtu (biomass, bituminous coal, Pet Coke, and TDF)
65% reduction
1.0 lb/MWh of gross energy output
Note: Standard is based on a 30-day rolling average basis.

Hg 4.43×10^{-5} lb/MWh (based on a worst case scenario of 85% Biomass, 15% bituminous coal)
Note: This emission limit is superseded by the BACT determination (see Section 6.3.7).

Georgia Rules for Air Quality Control (Chapter 391-3-1) limit PM, NO_X, and SO_2 emissions from fuel burning equipment. The FB boiler will have a PM limit of 0.10 lb/MMBtu and an opacity limit of 20 percent opacity, except for one 6-minute period per hour of not more than 27 percent opacity. The NO_X limit is applicable to fuel burning equipment with a heat input equal to or greater than 250 MMBtu/hr that combusts coal, gaseous fuel, and oil. The FB boiler(s) will only combust biomass or a biomass/fossil fuel mixture. Therefore, an applicable limit can not be calculated. The SO_2 limit is also applicable to fuel burning equipment with a heat input equal to or greater than 250 MMBtu/hr. The FB boiler will have a SO_2 limit of 1.2 lb/MMBtu when firing biomass or biomass/fossil fuel mixture. The PM and SO_2 Standards are effectively subsumed by 40 CFR 60, Subpart Da.

Georgia Rules also limit NO_X emission from electric utility steam generating units located in specific counties. The Yellow Pine Energy Facility will be located in Clay County which is not one of the specific counties. Therefore, this Standard is not applicable.

5.3.2 Auxiliary Boiler

New source performance standards (NSPS) have been developed by the U.S. EPA for small industrial boilers and specified in 40 CFR 60, Subpart Dc. These NSPS impose maximum allowable emission limitations on SO_2 and particulate emissions from small industrial boilers with a heat input of less than 100 MMBtu/hr. For the proposed facility, Subpart Dc specifies that the maximum SO_2 emissions be less than 0.5 lb/MMBtu when firing oil. The PM limit is not applicable to boilers with a heat input of less than 30 MMBtu/hr. The maximum heat input to the Auxiliary Boiler will be 25 MMBtu/hr and it is therefore subject to Subpart Dc.

Georgia Rules for Air Quality Control (Chapter 391-3-1) limit PM and NO_X emissions from fuel burning equipment. The auxiliary boiler will have a PM limit of 0.316 lb/MMBtu and an opacity limit of 20 percent opacity, except for one 6-minute period per hour of not more than 27 percent opacity. The NO_X limit is only applicable to fuel burning equipment with a heat input equal to or greater than 250 MMBtu/hr; therefore, this Standard is not applicable to the auxiliary boiler. The SO_2 limit is applicable to fuel burning equipment with a heat input less than 100 MMBtu. The Standard limits the sulfur content of the fuel to 2.5 percent.

On June 8, 2007, the U.S. Court of Appeals for the District of Columbia Circuit vacated the National Emission Standard for Hazardous Air Pollutants (NESHAP) for industrial, commercial and institutional boilers and process heaters (40 CFR 63, Subpart DDDDD). Yellow Pine Energy understands there may be future applicable requirements when the Boiler MACT issue is resolved and will address any new requirements at that time.

5.3.3 No. 2 Fuel Oil Tanks

New source performance standards (NSPS) have been developed by the U.S. EPA for volatile organic liquid storage vessels and specified in 40 CFR 60, Subpart Kb. All storage vessels having a volume greater than 40 m^3 (10,567 gallons) in volume are subject to this NSPS. Storage vessels having a volume greater 151 m^3 (39,890 gallons) containing VOCs with a vapor pressure less than 3.5 kPa (0.51 psia) are exempt from this NSPS. All storage vessels at the Facility will be either less than 10,567 gallons in volume and thus not subject to this NSPS or will meet the exemption due to volume and vapor pressure. No storage tanks at the Facility will be subject to this NSPS.

5.3.4 Emergency Generators

National Emission Standards for Hazardous Air Pollutants (NESHAP) have been developed by the U.S. EPA for stationary reciprocating internal combustion engines (40 CFR 63, Subpart ZZZZ). The only applicable requirement under this regulation for the back-up emergency diesel generator and diesel firewater pumps that will be utilized at the Facility is initial notification in 40 CFR 63.6645(d).

5.3.5 Material Handling, Non-Fugitive Emissions

Georgia Rules for Air Quality Control (Chapter 391-3-1) limit PM emissions from manufacturing and related processes. For the proposed Facility design, these regulations result in a calculated PM emissions limit of 83 lb/hr for each of the following sources: Fuel Process Building 1, Fuel Process Building 2, Tripper Deck Day Silos 1 – 5. The limit for PM emissions from the fly ash silo is calculated to be 7.16 lb/hr.

5.3.6 Material Storage and Handling, Fugitive Emissions

Georgia Rules for Air Quality Control (Chapter 391-3-1) limit the percent opacity from fugitive dust sources to less than 20 percent opacity. This limit will be applicable to the Barge/Clamshell Unloading, Transfer Towers, Conveyors, Storage Piles, Storage Pile Load-in, and Fly Ash Truck Loading.

5.4 Monitoring Requirements

5.4.1 Pre-construction Monitoring

PSD regulations have a potential requirement for the development and operation of an ambient air quality and meteorological monitoring station. Air quality monitoring could be required for any criteria pollutant emitted in significant amounts if representative data are not available. Exemptions from the pre-construction monitoring requirements can be obtained if:

- Representative meteorological data is available for use in the air quality modeling.

- The predicted ambient impact(s) attributable to the operation of the proposed Facility or the existing ambient pollutant concentrations are less than the U.S. EPA prescribed *de minimis* level of concentrations.
- The proposed source is located in an area not affected by other major stationary sources so that existing ambient monitoring data from representative regional sites are appropriate for ambient background concentrations.

Section 7.2 describes the meteorological data available for use in the transport and dispersion modeling analysis. Personnel from the Georgia EPD have indicated they consider these data representative of the area of the proposed Facility site. Therefore, pre-application meteorological monitoring will not be required for this project.

With the exception of SO_2, transport and dispersion modeling performed for the proposed Facility have indicated that the predicted air quality impacts (Section 7.0) attributable to the proposed Facility for all pollutants emitted in excess of the significant emission rates are less than the U.S. EPA defined *de minimis* ambient impact levels. The maximum impact of SO_2 attributable to the proposed Facility is greater than the U.S. EPA defined *de minimis* ambient impact level for one year of meteorological data (1993). However, Yellow Pine Energy is requesting an exemption from pre-construction monitoring for SO_2 based on the findings of the dispersion model described Section 7. Therefore, it is anticipated that preconstruction monitoring for criteria pollutants will not be required. Ozone is not an emitted pollutant; rather, it forms as a result of complex chemical reactions between precursor emissions of VOCs and NO_X in the presence of sunlight and high temperatures, resulting in peak ozone levels occurring at mid-day during the warmest months of the year. The proposed facility will be a source of both NO_X and VOC emissions; however, the increase in emissions (compared to regional or upwind emissions) is not expected to result in a significant increase in ozone levels at any downwind location. Furthermore, emissions of NO_X and VOC will be minimized through the use of BACT as previously described in Section 6. Clay County is designated as being in attainment of the current 8-hour ozone standard, with ambient background levels expected to be well below the NAAQS of 0.08 ppm. The closest ozone monitors to the proposed Facility are in Columbus and Sumter County, Georgia. Ozone monitoring data from these monitors are summarized below in Table 5-2.

TABLE 5-2
8-HOUR OZONE MONITORING SUMMARY FOR COLUMBUS AND SUMTER COUNTY, GEORGIA (PPM)

Year	Site	1st High	2nd High	3rd High	4th High
2004	Columbus Airport	0.083	0.079	0.069	0.068
	Columbus Crime Lab	0.075	0.074	0.067	0.067
	Leslie, Union High School	0.074	0.074	0.070	0.070
2005	Columbus Airport	0.085	0.079	0.079	0.078
	Columbus Crime Lab	0.082	0.078	0.074	0.073
	Leslie, Union High School	0.082	0.072	0.072	0.071
2006	Columbus Airport	0.087	0.087	0.086	0.080
	Columbus Crime Lab	0.078	0.075	0.073	0.072
	Leslie, Union High School	0.088	0.082	0.078	0.077

Because the fourth highest concentration observed at each site during the past 3 years does not exceed the 8-hour standard of 0.08 ppm, Muscogee and Sumter Counties, as well as Clay County, are considered (by EPD) to be in attainment for ozone.

5.4.2 Operational Monitoring

The Facility and in particular the proposed new FB boiler will comply with all applicable operational monitoring requirements imposed by Federal and State regulations. Sections 5.4.2.1 and 5.4.2.2 summarize the monitoring requirements that are applicable to this project.

5.4.2.1 FB Boiler

In addition to any one-time or periodic performance testing requirements, the Facility will install, calibrate, maintain, and operate the necessary monitoring equipment to monitor opacity, PM, SO_2, CO_2, NO_X and Hg emissions as specified by 40 CFR 60, Subpart Da.

5.4.2.2 Auxiliary Boiler

In addition to any one-time or periodic performance testing requirements, the Facility will install, calibrate, maintain, and operate the necessary monitoring equipment to record the fuel consumption in the boiler as required by 40 CFR, Subpart Dc.

5.4.2.3 Other

The Facility will comply with all other operational monitoring and reporting requirements as may be determined necessary by the Georgia EPD in order to ensure compliance with any federal or state rules or regulations. This will include any applicable future monitoring, reporting, and record keeping required as a result of the implementation of Title V (Operating Permits) and Title IV (Acid Deposition Control) of the Clean Air Act Amendments of 1990. Yellow Pine Energy requests that all such requirements be specifically stated in the permit.