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BUREAU OF AIR REGULATION

Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Attention: Mr. Jeffrey F. Koerner, P.E.

RE: BUCKEYE FLORIDA, LIMITED PARTNERSHIP
PSD PERMIT APPLICATION – BUCKEYE ENERGY INDEPENDENCE PROJECT
REQUEST FOR ADDITIONAL INFORMATION

Dear Mr. Koerner:

Buckeye Florida, Limited Partnership (Buckeye) has received the Department's requests for additional information (RAI) dated January 10, 2008, and January 25, 2008, regarding the Buckeye Energy Independence Project. Each of the Department's requests is answered below, in the same order as they appear in the RAI letters. The revised application form pages and application attachments are included as part of this RAI response as attachments.

Comment 1. **Modeling Issues: The modeling analysis including input files for this project was received on December 27, 2007. The Department will request additional information regarding modeling issues by January 26, 2008.**

Response: Buckeye has received the Department's RAI dated January 25, 2008, regarding modeling issues for the Buckeye Energy Independence Project. The three modeling comments are addressed at the end of this response letter.

Comment 2. **Project Description: The proposed project seeks to improve efficiency for steam and electrical equipment at the plant, reduce the amount of electricity purchased from the grid and reduce the amount of fuel oil fired. The following summarizes the affected emissions units, describes the proposed changes related to the project and requests additional information as indicated.**

a. **No. 1 Power Boiler (EU-002): No physical changes are proposed; however, oil firing (including in this boiler will be restricted to no more than 820,958 MMBtu per consecutive 12 months (equivalent to 5,623,000 gallons of oil).**

Response: This is correct. Fuel oil firing in the No. 1 Power Boiler (EU 002) will be limited to no more than 820,958 million British thermal units per year (MMBtu/yr) (equivalent to 5,623,000 gallons of fuel oil), and the boiler will not undergo any physical changes.

b. **No. 2 Power Boiler (EU-003): No physical changes are proposed; however, this boiler will be prohibited from firing any fuels other than natural gas.**

Response: This is correct. The No. 2 Power Boiler will be prohibited from firing any fuel besides natural gas and the boiler will not undergo any physical modifications.

c. **Nos. 2 and 3 Recovery Boilers (EU-006 and EU-007): These boilers will be physically modified by converting from direct contact evaporator (DCE) units to low-odor, non-direct contact evaporator (NDCE) units. Changes will allow the boilers to produce additional steam per pound of black liquor solids fired.**

1) **Please provide details of the work that will be performed for the modifications. What are the related costs for the proposed changes for each boiler?**

Response: The details of the work that will be performed on the Nos. 2 and 3 Recovery Boilers can be found in Section 2.2.1, page 2-8 of the prevention of significant deterioration (PSD) report. The related overall costs for the proposed changes to each boiler can be found in Section 3.5.3, pages 3-14 to 3-15 of the PSD report. The breakdown of those costs is as follows:

- Conversion of the No. 2 Recovery Boiler to NDCE design - \$6.3 million
- Tertiary air fan on the No. 2 Recovery Boiler - \$0.5 million
- Conversion of the No. 3 Recovery Boiler to NDCE design - \$7.9 million
- Installation of the No. 2 Black Liquor Concentrator - \$5.5 million
- Installation of the No. 3 Black Liquor Concentrator - \$5.1 million
- Common system changes (tanks, piping, pumps, etc) - \$3.0 million

2) **Provide details of any changes proposed to the over-fire air systems. What are the related costs?**

Response: The specific changes to the over-fire air systems will not be known until an engineering study is performed; however, a new tertiary air fan for the No. 2 Recovery Boiler is one of the proposed activities listed in section 2.2.1, page 2-8 of the PSD report. The new fan would be added in order to compensate for the loss of air supply resulting from the proposed re-routing of existing ductwork. The air system will remain essentially the same, with the same air ports as the current system. The new fan will supply ambient air rather than heated air, which is supplied by the current fan. The cost of this portion of the proposed project is estimated to be \$500,000.

3) **Identify the new steam production rates (maximum 1-hour and maximum 24-hour averages) for each boiler.**

Response: The steam production rates for the Nos. 2 and 3 Recovery Boilers are not regulated in the Title V operating permit (Permit No. 1230001-016-AV). The steam production rates from biomass boilers (recovery boilers) are highly variable and dependent on multiple factors. Unlike fossil fuel-fired boilers, there is no clear correlation between fuel burning rates (and related heat input rates) and steam production. Variability in firing solids, changes in heat transfer surface cleanliness between boiler tube washes, variability in the fuel quality due to process conditions, and variability in required excess air for proper combustion for control of carbon monoxide (CO) and Total Reduced Sulfur (TRS) can all impact boiler efficiency and therefore, the amount of steam produced from a specific firing rate at the burners. The maximum estimated steam production rates for the Nos. 2 and 3 Recovery Boilers after proposed changes from this project are 380,000 pounds per hour (lb/hr) and 325,000 lb/hr, respectively. These values represent both the maximum estimated 1-hour and maximum estimated 24-hour average steam production rates.

4) **Identify the number of oil burners and the maximum rated capacity of each (vendor specification) in MMBtu/hour and gallons per hour. Will the project replace or modify and burners?**

Response: Buckeye has researched their engineering information and contacted the burner manufacturers and has concluded the information contained in past submittals was in error. The No. 2 Recovery Boiler has eight oil burners with a rated capacity of 40 MMBtu/hr per burner, for a total of 320 MMBtu/hr heat input. This is equivalent to 274 gallons per hour (gal/hr) per burner or 2,192 gal/hr total, based on a heat content of 146,000 Btu/gallon for fuel oil. The No. 3 Recovery Boiler has four oil burners with a rated capacity of 20 MMBtu/hr per burner, for a total of 80 MMBtu/hr heat input. This is equivalent to 137 gal/hr per burner or 548 gal/hr total. See attached specification sheets and correspondence in Attachment A, which documents the maximum heat input rates. Revised application form pages are provided in Attachment B and revised PSD report emissions tables are provided in Attachment C.

The project will not replace or modify any of the burners that are currently associated with the Nos. 2 and 3 Recovery Boilers.

5) **What is the heating value (Btu per lb of BLS) of the BLS at a solids content of 72%? Will the boilers be able to fire the same amount of BLS at the increased solids content? Will the maximum heat input rates increase as a result of this project?**

Response: The heating value of the BLS fired in the Nos. 2 and 3 Recovery Boilers is currently 6,000 Btu/lb, and varies in the range of 5,900 to 6,200 Btu/lb. The solids content of the black liquor does not change the heating value of the fuel, as the heating value is expressed on a solids basis. After the low-odor conversions, the boilers will fire the same amount of BLS as currently being fired, but at a higher solids content in order to increase the efficiency of the boiler. However, the maximum heat input rates will increase as a result of the elimination of black liquor oxidation. Black liquor oxidation oxidizes the inorganic sulfide in the liquor prior to entering the boiler, thus reducing the liquor heating value. The liquor heating value of un-oxidized black liquor at Buckeye is approximately 7 percent higher than oxidized black liquor. Thus, the average heating value of the BLS after the project is implemented will be approximately 6,400 Btu/lb. The maximum heat input to the No. 2 Recovery Boiler will increase to 625 MMBtu/hr based on 97,600 lb/hr BLS firing rate. The maximum heat input to the No. 3 Recovery Boiler will increase to 527 MMBtu/hr based on 82,350 lb/hr BLS firing rate.

6) **Please describe the startup and shutdown of these units and emissions during these periods, including: commencement of oil firing, commencement of BLS firing, startup of ESP, cessation of oil firing, etc.**

Response: The process of starting up the Nos. 2 and 3 Recovery Boilers can be summarized as follows:

1. Thorough external inspection of the boiler and ESP to ensure the access doors are closed, the scaffolding is removed, the fire suppression system valves are open, the process valves are positioned correctly, and the electrical circuit breakers are engaged.

2. The ID fan headers and casing are warmed up.
3. The ID fan is started up.
4. The remainder of the boiler steam header is warmed up.
5. The ESP is determined to be fully operational.
6. The boiler is fired with fuel oil.
7. The firing rate/steaming rate is gradually increased over the course of several hours until the boiler is at or near the maximum fossil fuel firing rate.
8. Black liquor is fired in the boiler.
9. The black liquor firing rate is increased while fuel oil firing rated is decreased.
10. Fuel oil firing is terminated.

The process of shutting down the Nos. 2 and 3 Recovery Boilers is essentially the same as starting them up, except in reverse order as the steps listed above. The ESP is operational at all times during shutdown to ensure proper emissions control while firing either fossil fuels or black liquor in the boilers.

It is not possible to quantify emissions from the Recovery Boilers during startup or shutdown. No data exists for such quantification. Buckeye does have TRS and CO concentration data from their continuous emission monitoring system (CEMS) on the Nos. 2 and 3 Recovery Boilers. However, no gas flow rates are available from which to calculate mass emissions rates.

7) Other than startup and shutdown, describe how fuel oil is fired as a supplemental fuel.

Response: In addition to boiler startups and shutdowns, fuel oil is fired as a supplemental fuel when BLS is temporarily unavailable due to mill upset, when more steam is needed, or during upset process conditions (such as charbed control).

8) Identify the SO_2 emission rate in terms of "ppmvd @ 8% oxygen" that is equivalent to the maximum fuel oil sulfur content (2.5 percent by weight).

Response: The SO_2 emission rate in terms of ppmvd at 8 percent oxygen that is equivalent to the maximum fuel oil sulfur content of 2.5 percent by weight can only be estimated, as it is dependent on the fuel oil burning rate, air flow rate, percent excess oxygen, and percent conversion of sulfur to SO_2. The assumptions made for this calculation are that fuel oil alone is fired (no BLS firing) and a sulfur content of 2.5 percent by weight. By using the emission factor of 0.157(S) lb/gal from AP-42, Table 1.3-1, the SO_2 emission rate per pound of fuel oil is 0.3925 lb/gal, or 0.0471 lb SO_2/lb oil based on 8.33 lb/gal.

The combustion of one pound of No. 6 fuel oil with 40 percent saturated air at 60°F and 0 percent excess air results in 167 ft^3 of dry combustion gases. The volume of SO_2 in the resulting combustion gases can be determined by using the ideal gas law.

$$PV = mRT$$

$$V = \frac{mRT}{P}$$

$$V = \frac{0.0471 \text{ lb SO}_2 \times 1545.6 \frac{\text{ft-lb}_\text{f}}{\text{lb}_\text{m}\text{-°R}} \times \frac{1 \text{ lb}_\text{m}}{64 \text{ lb}} \times 520\text{°R}}{2116.8 \frac{\text{lb}_\text{f}}{\text{ft}^2}}$$

$$V = 0.2794 \text{ ft}^3 \text{ SO}_2$$

The concentration of the SO_2 can then be calculated by dividing the volume of SO_2 by the total volume of dry combustion gases.

$$C_{SO_2} = \frac{0.2794 \text{ ft}^3}{167 \text{ ft}^3} \times 1{,}000{,}000 = 1{,}673 \text{ ppmvd SO}_2 \text{ @ } 0\% \text{ O}_2$$

The volumetric concentrations can then be corrected to 8 percent O_2 as follows.

$$1{,}673 \text{ ppmvd SO}_2 \text{ @ } 0\% \text{ O}_2 \times \frac{21-8}{21-0} = 1{,}035 \text{ ppmvd SO}_2 \text{ @ } 8\% \text{ O}_2$$

Therefore, under the assumptions outlined above, the concentration of SO_2 exiting the stacks of the recovery boilers is 1,035 ppmvd at 8 percent oxygen.

d. Pulping System (EU-046): Add two concentrators to increase black liquor solids content. Add a new black liquor storage tank to store the 72% solids black liquor. Changes will increase the non-condensable gases (NCG) generated from the multiple effect evaporator (MEE) system, which will be controlled by the TRS scrubber. Will this equipment become subject to NESHAP Subpart MM as a new emissions unit? What is the total cost to this work? Will the third existing boiler experience a physical change or a change in the method of operation?

Response: The NCGs from the MEE system will be vented to the No. 1 Bark Boiler (EU 004) for destruction, with the No. 1 Power Boiler (EU 002) used as a backup incineration device for the NCGs. This is the current configuration and will not change with the proposed project. The emissions standards for the two new black liquor concentrators are described in Section 3.5.3, pages 3-14 to 3-16 of the PSD Report. The two black liquor concentrators will be part of the existing MEE system, which already is subject to NESHAP Subpart S. NESHAP Subpart MM regulates recovery boilers, smelt dissolving tanks, and lime kilns. It does not regulate multiple effect evaporator systems.

The estimated cost of the new black liquor concentrators is $5.5 million and $5.1 million for the Nos. 2 and 3 Black Liquor Concentrators, respectively, which are being added to the MEE system.

The third existing recovery boiler, the No. 4 Recovery Boiler (EU 011), will not experience a physical change or a change in its method of operation as a result of this project.

e. Steam Conservation Projects: Please provide details of the small steam conservation projects to be implemented throughout the plant and the related costs.

Response: The steam conservation projects will be undertaken as they arise. The exact projects have not been determined yet, and therefore, no costs can be provided at this time. Some of the potential projects that have been identified so far are:

- Paper machine steam system improvements;
- Conversion of the No. 1 evaporator to a multiple effect (6 total) evaporator;
- Repair steam leaks and traps;
- Heating of the No. 1 Chlorine Dioxide (ClO_2) system;
- Replacing missing or damaged insulation;
- Improvements to the No. 1 Brown Stock Washing system;
- Improvements to the Pulp Drying (PD) air system;
- Replacement of the Nos. 1 through 3 MEEs;
- Reduction of the water in the black liquor from sumps and miscellaneous sources;
- Elimination of hot water makeup to the reuse tank;
- Elimination of the No. 1 Bark Boiler steam coil air heater;
- Improvement of the hot water control strategy;
- Optimization of the evaporation system (evaporation capacity, operating strategy, surge use, recirculation, liquor wash, etc);
- Reduction of steam losses in the turbine gland seal exhaust;
- Reduction of pressure for soot blowing in the boilers;
- Steam pressure relief valve (PRV) and feed water pump optimization;
- Installation of alternative soot blowing technology for the boilers;
- Reduction of evaporator venting losses in the MEE by reducing the high flow shell bleeds to the NCG system;
- Changes to the PD White Water Filter System;
- Utilization of waste heat from the lime kiln; and
- Reclamation of waste heat by use of air to air heat exchangers.

Each of these projects will be evaluated independently of each other. None are being proposed as part of the Buckeye Energy Independence Project.

f. Nos. 1 and 2 Bark Boiler (EU-004 and EU-019): The plant intends to operate each boiler approximately 13 percent more on an annual basis by firing additional purchased bark/wood throughout the year. No physical changes or changes in the method of operation are proposed or necessary to meet this goal.

Response: This is correct. The Nos. 1 and 2 Bark Boilers will see an increase in their average heat input of approximately 13 percent, which will come from additional purchased bark or wood.

No physical changes or changes in the method of operation will be necessary to meet the 13 percent increase in operation.

g. **New Turbine Generator: Install a new steam turbine generator to produce additional electricity (12 MW) for the plant.**

Response: This is correct. A new steam turbine will be installed in order to produce additional electricity.

h. **BLOX System: after completion of the No. 2 recovery boiler conversion, the maximum throughput of the black liquor oxidation (BLOX) system will be reduced proportionately (46 percent) and will support only the No. 3 recovery boiler. After completion of the second recovery boiler conversion, the BLOX system will be permanently shutdown.**

Response: This is correct. The BLOX system will be reduced proportionally when the No.2 Recovery Boiler is converted to a NDCE design and then completely shut down when the No. 3 Recovery Boiler is converted to NDCE design.

Comment 3. **<u>No. 4 Recovery Boiler:</u> The No. 4 Recovery Boiler was not included as part of this project. Will this boiler also fire BLS with a solids content of 72%? Please explain why this is not an affected unit of this project.**

Response: The No. 4 Recovery Boiler was not included with this project because it will not be affected by the project. The boiler is already of an NDCE design and already fires BLS with a solids content of 70 to 72 percent. One of the objectives of this project was to update the Nos. 2 and 3 Recovery Boilers so that they are of similar design as the No. 4 Recovery Boiler. There will be no physical changes to or changes in the method of operation of the No. 4 Recovery Boiler as part of the Buckeye Energy Independence project.

Comment 4. **<u>Schedule:</u> The project will be constructed in the following two phases:**

a. **Phase I: Convert the No. 2 recovery boiler and add one new black liquor concentrator. After completing the conversion, operate BLOX system at a reduced capacity to support only the No. 3 recovery boiler. Construction is planned to commence in 2008 and be completed in 2009.**

b. **Phase II: Install one new condensing steam turbine generator, convert the No. 3 recovery boiler, and install a second new black liquor concentrator. Upon startup of the new turbine generator, the Nos. 1 and 2 bark boilers will increase operation and the Nos. 1 and 2 power boilers will begin complying with the oil firing restrictions. Construction is planned to commence in 2008 for the new turbine generator, in 2009 for the No. 3 recovery boiler and be completed in 2009.**

Does this correctly summarize the preliminary construction schedule? Please correct or comment as necessary.

Response: This is a correct summation of the preliminary construction schedule.

Comment 5. **Contemporaneous Permit Projects: The Department's ARMS database indicates the following air construction permit projects issued to this facility since 2002.**

- **Permit No. 1230001-017-AC: This is identified as a minor source air construction permit modification to authorize boilers to fire tall oil, which was issued on 2/16/2005 by NED office. Please explain this project the emissions increases and why the emissions were not identified as contemporaneous emissions increases.**
- **Permit No. 1230001-018-AC: This is identified as a minor source air construction permit modification of the No. 1 Bark Boiler and the No. 1 Power boiler, which was issued on 2/16/2005 by the NED office. Please explain this project, the emissions increases and why it was not included as a contemporaneous project.**

For each project, identify the affected emissions units, describe the actual modifications or change in the method of operation made, summarize the emissions increases/decreases and provide a rationale as to why these emissions were not included in the PSD netting analysis provided.

Response: These construction permits were identified in Tables 3-3 and 3-4 of the PSD report. These tables showed that these projects did not result in any contemporaneous increases in NO_x, CO, PM, and PM_{10}. Although Permit No. 1230001-018-AC indicates the project resulted in an increase in emissions, this permit actually revised a permit issued several years earlier as part of the MACT I permitting, with no change in emissions from this previous project. Therefore, Permit No. 1230001-018-AC itself did not result in an increase in emissions.

Comment 6. **$PM_{2.5}$ Emissions: For each affected emissions unit, please estimate the $PM_{2.5}$ emissions.**

Response: The emission factors tables in Appendix A, Tables A-2, A-8, A-14, A-19, A-24, A-30, and A-36 (attached) have been revised and now contain the $PM_{2.5}$ emission factors used to estimate the baseline actual $PM_{2.5}$ emissions from each of the emissions units in the Buckeye Energy Independence project (see Attachment C). The derivation of the factors is described below for each emission unit.

***Baseline Actual Emission Factors*:**

- Nos. 2 and 3 Recovery Boilers:
  - BLS Firing: The $PM_{2.5}$ emission factor used for BLS firing was 53.4 percent of PM emissions based on the median value for DCE recovery furnaces from NCASI Technical Bulletin No. 884, Table 4.11.
  - Fuel Oil Firing: The $PM_{2.5}$ emission factor used for No. 6 fuel oil firing was 41 percent of PM emissions based on utility boilers with ESP controls from AP-42, Table 1.3-4.

- Nos. 1 and 2 Power Boilers:
  - Fuel Oil Firing: The $PM_{2.5}$ emission factor used for No. 6 fuel oil firing was 56 percent of PM emissions based on industrial boilers with no controls from AP-42, Table 1.3-5.
  - Natural Gas Firing: The $PM_{2.5}$ emission factor used for natural gas firing was 100 percent of PM emissions based on AP-42, Table 1.4-2.
- Nos. 1 and 2 Bark Boilers:
  - Fuel Oil Firing: The $PM_{2.5}$ emission factor used for No. 6 fuel oil firing was 97 percent of PM emissions based on utility boilers with wet scrubber controls from AP-42, Table 1.3-4.
  - Wood/Bark Firing: The $PM_{2.5}$ emission factor used for wood/bark firing was 98 percent of PM emissions based on AP-42, Table 1.6-5.
- Black Liquor Oxidation System for Nos. 2 and 3 Recovery Boilers: The $PM_{2.5}$ emission factor used for the black liquor oxidation system (BLOX) was a conservative estimate of 100 percent of PM emissions, since no $PM_{2.5}$ emission factors exist.

Projected Actual Emission Factors:

Phase I:

- No. 2 Recovery Boiler:
  - BLS Firing: The $PM_{2.5}$ emission factor used for BLS firing was 49.8 percent of PM emissions based on the median value for NDCE recovery furnaces from NCASI Technical Bulletin No. 884, Table 4.12.
  - Fuel Oil Firing: The $PM_{2.5}$ emission factor used for No. 6 fuel oil firing was the same as the one used to estimate the baseline actual emissions.

Phase II:

- Nos. 2 and 3 Recovery Boilers: The emission factors used for BLS firing and No. 6 fuel oil firing were the same as those used to estimate the projected actual emissions for Phase I.
- Nos. 1 and 2 Power Boilers: The emission factors used for No. 6 fuel oil firing and natural gas firing were the same as those used to estimate the baseline actual emissions.
- Nos. 1 and 2 Bark Boilers: The emission factors used for No. 6 fuel oil firing and wood/bark firing were the same as those used to estimate the baseline actual emissions.

Future Potential Emission Factors:

- Nos. 2 and 3 Recovery Boilers: The emission factors used for BLS firing and No. 6 fuel oil firing were the same as those used to estimate the projected actual emissions.
- Nos. 1 and 2 Power Boilers: The emission factors used for No. 6 fuel oil firing and natural gas firing were the same as those used to estimate the projected actual emissions.
- Nos. 1 and 2 Bark Boilers: The emission factors used for No. 6 fuel oil firing and wood/bark firing were the same as those used to estimate the projected actual emissions.

The referenced source materials for the baseline actual, projected actual, and future potential emissions were either provided in Attachment C of the PSD Report, or are provided in Attachment D of this response. Using the emission factors described above, the $PM_{2.5}$ emissions are estimated in the table below, as well as shown in the revised application tables provided in Attachment C of this response.

Emission Unit	Baseline Actual Emissions (TPY)	Projected Actual Emissions – Phase II (TPY)	Increase in Emissions (TPY)	Future Potential Emissions (TPY)
No. 2 Recovery Boiler	33.58	64.42	30.84	68.90
BLOX for RB2	0.98	--	-0.98	--
No. 3 Recovery Boiler	20.35	60.57	40.22	66.91
BLOX for RB3	0.78	--	-0.78	--
No. 1 Power Boiler	18.81	37.73	18.92	46.41
No. 2 Power Boiler	0.84	8.29	7.45	8.29
No. 1 Bark Boiler	127.84	143.89	16.05	203.46
No. 2 Bark Boiler	346.93	383.11	36.19	459.19
Total	**550.10**	**698.02**	**147.92**	**853.17**

Comment 7. **<u>NSPS and NESHAP Applicability:</u> When existing units are modified, the federal NSPS and NESHAP requirements may be trigged for a given pollutant regulated by that NSPS or NESHAP if the maximum hourly mass emissions rate for that pollutant increases because of the project. Page 3-15 states that the recovery boilers are currently subject to NESHAP Subpart MM as existing units. Will the project trigger any new requirements because of this project? For each recovery boiler, please provide a table summarizing the before/after maximum hourly mass emissions rates for each pollutant regulated by a potentially applicable NSPS or NESHAP.**

Response: The project will not trigger any new NESHAP requirements as the NESHAP rules are applicable only to newly constructed or reconstructed emissions units. There is no modification language in the NESHAP rules. The proposed modifications to the emissions units are not considered to be new construction or reconstruction, as explained in Section 3.5.3, pages 3-14 to 3-16. Therefore, the project will not trigger any new requirements because of this project. Only emissions of PM and TRS are covered under the NSPS rules. The maximum hourly emissions from the affected units before and after the change are shown below:

Pollutant – Emissions Unit	Emissions Before Change (lb/hr)	Emissions After Change (lb/hr)	Change in Emissions (lb/hr)
PM – No. 2 Recovery Boiler	20.7	20.7	0.0
PM – No. 3 Recovery Boiler	16.0	16.0	0.0
TRS – No. 2 Recovery Boiler	11.4	4.1	-7.3
TRS – No. 3 Recovery Boiler	11.1	2.9	-8.1

The PM emissions before the change were calculated by taking the maximum stack test since 2004 for the No. 2 Recovery Boiler and since 1996 for the No. 3 Recovery Boiler (see Appendix A, Tables A-6 and A-12 of the PSD Report). The PM emissions after the change are based on the pre-change emissions, since no increase in emissions is expected due to the proposed changes to the recovery boilers. This would ultimately be demonstrated by using the methodology of Appendix C of 40 CFR Part 60.

The TRS emissions before the change were calculated by dividing the baseline annual emissions (see Table 2-1 of the PSD Report) by the average hours of operation during the baseline period (see Appendix A, Tables A-6 and A-12 of the PSD Report). This calculation is essentially an annual average of the hourly TRS emissions. The actual hourly emissions from the Nos. 2 and 3 Recovery Boilers could have been significantly higher. The TRS emissions after the change were based on the future potential emissions after the change from the Nos. 2 and 3 Recovery Boilers (see Table 2-4 of the PSD Report).

Comment 8. **Appendix A: There are several tables that have the baseline actual annual emissions assessed followed by a revised table for the same source and assessment, such as Table A-1 & A-2, where Table A-2 is listed as "Revised Emission Factors to Determine Actual Annual Emissions". Other table combinations where this was done are Tables A-7 & A-8, Table A-13 & A-14, Tables A-18 & A-19, Tables A-23 & A-24, Tables A-29 & A-30, and Tables A-35 & A-36. What does "revised" indicate? Why are there two tables for the same issue? If any of these changes affect the AOR submittals from past years, then please submit the changes to the Compliance Authority for updating the ARMS data. In addition, please consolidate the tables such that you have only one table for each emissions unit that reflects its past actual annual emissions.**

Response: The two tables present different information. The first table presents the emission factors used and reported each year in the facility AOR submittals. These emission factors may have changed over time or did not use 5-year averages of stack tests or the emission factor hierarchy required by Rule 62-210.370(2)(d)1.a., F.A.C. In the "revised" tables, the most current emission factors representative of the physical and operational configuration of the units for each year are used. In addition, the five year average stack tests encompassing the year for which emissions were being calculated were used. The two tables were provided in order to show the difference between the emission factors reported in the AORs and the emission factors used in the application. All calculated baseline actual emissions were based on the factors used in the "revised emission factors" Tables A-2, A-8, A-14, A-19, A-24, A-30, and A-36.

Comment 9. **<u>SO_2 Calculations from Oil:</u> When calculating actual baseline emissions for sulfur dioxide (SO_2), the actual sulfur content (annual average) must be used and not the permitted allowable sulfur content (2.5 percent by weight). Please review the following tables: Tables 2-1 through 2-4 and Tables A-1 through A-40. For any actual baseline emissions calculations using "2.5 percent sulfur by weight", please provide supporting documentation (e.g., vendor analyses for each delivery) of the actual sulfur content. If necessary, revise any affected tables for actual SO_2 emissions based on actual fuel sulfur content. For these same tables, please review the footnotes and for each citation of "AP-42" without a corresponding reference, please provide the reference (see Table A-18, footnote "n").**

Response: The actual annual average sulfur content of the No. 6 Fuel Oil burned was used to calculate the baseline actual SO_2 emissions for all years except 1997, 1998, and 1999. For these years, the fuel records were not available. The highest 2-year average SO_2 emissions occurred during 2003 and 2004, for which the actual fuel records were available. Therefore, the assumed sulfur content for 1997, 1998, and 1999 had no bearing on the baseline period selected for the PSD applicability analysis. These actual annual averages are shown in "revised emission factors" Tables A-2, A-8, A-14, A-19, A-24, A-30, and A-36. The footnotes that this comment is referring to are what were reported in the facility AORs in Tables A-1, A-7, A-13, A-18, A-23, A-29, and A-35.

Comment 10. **<u>Emissions Factors from Test Data:</u> For the No. 2 recovery boiler, footnote "I" in Table A-1 states that emissions factor used is the "average of last three stack tests". Why weren't tests from the last five-year period encompassing the period over which the emissions are being computed used to determine the emission factor pursuant to Rule 62-210.370(2)(d)1.a., F.A.C.? Unless justified for using the "average of last three stack tests", please recalculate the emissions factor pursuant to the rule and adjust Tables A-1 and A-5 accordingly. For the No. 3 recovery boiler, please do the same for Tables A-7 and A-11. For the No.1 bark boiler, please do the same for Tables A-23 and A-27. For the No. 2 bark boiler, please do the same for Tables A-29 and A-33.**

Response: The average of the last three stack tests were used in calculating the emissions from the recovery boilers and bark boilers for the AOR submittals, as shown in Tables A-1, A-7, A-23, and A-29. These emission factors were changed in the "revised emission factors" in Tables A-2, A-8, A-24, and A-30, to five-year averages encompassing each reporting year. These five-year averages were then used in the subsequent tables in order to calculate the baseline actual emissions from the boilers.

Comment 11. **<u>Multiplier:</u> For Tables A-1, A-7, A-23, A-29, provide the basis and justification for using the multiplier defined as "1.15".**

Response: As stated previously, the Tables A-1, A-7, A-23, and A-29 contain the emission factors that were used in the facility AOR submittals. The 1.15 factor used in the AOR submittals was apparently a 15 percent safety factor. The "revised emission factors" tables used five-year average stack tests and the most recently published emission factors instead of the 15 percent safety factors in order to calculate the baseline actual emissions.

Comment 12. **<u>Control Efficiencies:</u> In Table A-23 for the No. 1 bark boiler (footnote "o"), provide the basis for the particulate matter (PM) scrubber collection efficiency defined as 95%. In Table A-23 for the No. 1 bark boiler (footnote "x"), provide the basis for the SO_2 scrubber collection efficiency defined as 40 percent. In Table A-29 for the No. 2 bark boiler (footnote "l"), provide the basis for the SO_2 scrubber collection efficiency defined as 40 percent. In Table A-29 for the No. 2 bark boiler (footnote "o"), provide the basis for the particulate matter (PM) scrubber collection efficiency defined as 95 percent.**

Response: Both bark boilers have medium efficiency centrifugal collectors and wet venturi scrubbers that control PM emissions. The 95 percent overall removal efficiency estimate is a conservative estimate of the PM removal afforded by the combination of these control devices.

The 40 percent removal efficiency is also a conservative estimate of the SO_2 removal afforded by the wet scrubbers. The value for the removal efficiency originated from an application submitted in November 1987 for Buckeye's TRS control package, which was then included by the DEP in the Air Construction Permit No. AC62-141927. This removal efficiency was determined by Sirrine Environmental Consultants to be the minimum SO_2 reduction expected from the scrubbers such as those employed by Buckeye. This value has been ever since, as no changes have been made to the Nos. 1 and 2 Bark Boilers or their pollution control systems.

Comment 13. **<u>Changing Emissions Factors:</u>**

a. **Regarding Table A-14 for Power Boiler No.1, the NO_x emission factor when firing fuel oil is stated as 47.0 lb/10^3 gallons. Regarding Table A-18 for Power Boiler No. 2, the NO_x emission factor when firing fuel oil is stated as 55.0 lb/10^3 gallons. Since the maximum heat input is 249 MMBtu/hr for each boiler, why are the emission factors different?**

Response: The emission factor of 55 lb/10^3 gallons of fuel oil in Table A-18 was the emission factor that was used in the 1996 AOR submittal, which was the last time that fuel oil was fired in the No. 2 Power Boiler. Table A-13 shows that the emission factor of 55 lb/10^3 gallons of fuel oil was reported in the 1996, 1997, 1998, and 1999 AOR submittals for the No. 1 Power Boiler. This emission factor was reported in AP-42 at that time. For the years 2000 through the most current AOR, the emission factor of 47 lb/10^3 gallons of fuel oil was used, which represents the current AP-42 emission factor. This value was used for all years in the "revised emission factors" in Table A-14 for the No. 1 Power Boiler. The No. 2 Power Boiler has fired only natural gas since 1996 and so the emission factor for fuel oil firing was not necessary in the "revised emission factors" shown in Table A-19.

b. **Regarding Table A-18 for Power Boiler No. 2, the NO_x emission factor when firing natural gas is stated as 550.0 lb/10^6 scf, for the years 1996 to 1999, then it changed to 280.0 lb/10^6 scf, for the years 2000 to 2006. Why are the emission factors different?**

Response: As stated previously, the emission factors in Table A-18 are those reported each year in the AOR submittals. The emission factor of 550 lb/10^6 scf of natural gas used in the years 1996, 1997, 1998, and 1999 was the emission factor reported in AP-42. The emission factor of 280 lb/10^6 scf of natural gas used in the years 2000 and after represents the current AP-42 emission factor for natural gas burning. In the "revised emission factors" in Table A-19, the current AP-42 emission factor of 280 lb/10^6 scf of natural gas was used in order to calculate the NO_x emissions for all years.

c. **Regarding Table A-14 for Power Boiler No. 1, the CO emission factor when firing natural gas is stated as 84.0 lb/10^6 scf. Regarding Table A-18 for Power Boiler No. 2, the CO emission factor when firing natural gas is stated as 40.0 lb/10^6 scf, for the years 1996 to 1999, and then it changed to 84.0 lb/10^6 scf, for the years 2000 to 2006. Since the maximum heat input is 249 MMBtu/hr for each boiler, why are the emission factors different?**

Response: The emission factor of 40 lb/10^6 scf of natural gas in Table A-18 was the emission factor that was used in the 1996, 1997, 1998, and 1999 AOR submittals for the No. 2 Power Boiler. Table A-13 shows that the emission factor of 40 lb/10^6 scf of natural gas was also reported in the 1996, 1997, 1998, and 1999 AOR submittals for the No. 1 Power Boiler. This emission factor was reported in AP-42 at that time. For the years 2000 through the most current AOR, the emission factor of 84 lb/10^6 scf of natural gas was used, which represents the current AP-42 emission factor. This factor was used for all years in the "revised emission factors" in Tables A-14 and A-19 for the Nos. 1 and 2 Power Boilers.

d. **Regarding Table A-18 for Power Boiler No. 2, the PM emission factor when firing natural gas is stated as 3.0 lb/10^6 scf, for the years 1997 to 1999, then it changed to 7.6 lb/10^6 scf, for the years 2000 to 2006. Why are the emission factors different?**

Response: The emission factor of 3 lb/10^6 scf of natural gas in Table A-18 was the emission factor that was used in the 1996, 1997, 1998, and 1999 AOR submittals for the No. 2 Power Boiler. Table A-13 shows that the emission factor of 3 lb/10^6 scf of natural gas was also reported in the 1996, 1997, 1998, and 1999 AOR submittals for the No. 1 Power Boiler. This emission factor was reported in AP-42 at that time. For the years 2000 through the most current AOR, the emission factor of 7.6 lb/10^6 scf of natural gas was used, which represents the current AP-42 emission factor. This value was used for all years in the "revised emission factors" Tables A-14 and A-19 for the Nos. 1 and 2 Power Boilers.

e. **Regarding Table A-18 for Power Boiler No. 2, the PM_{10} emission factor when firing natural gas is stated as 3.0 lb/10^6 scf, for the years 1997 to 1999, then it changed to 7.6 lb/10^6 scf, for the years 2000 to 2006. Why are the emission factors different? Why is there no emission factor for the years 2001 through 2005? For the years 2001 through 2005, the emission factor listed is "below threshold". Please explain this assumption since there are no PM nor PM_{10} compliance tests required to be conducted on this boiler.**

Response: The emission factor of 3 lb/10^6 scf of natural gas in Table A-18 was the emission factor that was used in the 1996, 1997, 1998, and 1999 AOR submittals for the No. 2 Power Boiler. Table A-13 shows that the emission factor of 3 lb/10^6 scf of natural gas was also reported in the 1996, 1997, 1998, and 1999 AOR submittals for the No. 1 Power Boiler. This emission factor was reported for PM in AP-42 at that time. This was a conservative estimate that 100 percent of the PM emissions are PM_{10}. For the years 2000 through the most current AOR, the emission factor of 7.6 lb/10^6 scf of natural gas was used, which represents the current AP-42 emission factor for PM emissions. The conservative assumption that 100 percent of the PM emissions are PM_{10} was used in AOR reporting for the years 1996 through 2000, and 2006. In the years 2001 through 2005, the PM emissions from natural gas firing in the No. 2 Power Boiler were lower than the 5 TPY reporting threshold, so even with the conservative estimate that 100 percent of PM emissions are PM_{10}, the result is still below the threshold for reporting in the AORs. Therefore, in the years 2001 through 2005, the PM_{10} emission factor was reported as "below threshold."

The value of 7.6 lb/10^6 scf of natural gas was used in the "revised emission factors" in Tables A-14 and A-19 for the Nos. 1 and 2 Power Boilers, assuming 100 percent of the PM is PM_{10}. This emission factor was used in order to calculate the PM_{10} emissions for all years.

f. Regarding Table A-18 for Power Boiler No. 2, the VOC emission factor when firing natural gas is stated as 1.40 lb/10^6 scf, for the years 1997 to 1999, then it is changed to 5.5 lb/10^6 scf, for the years 2000 to 2006. Why are the emission factors different?

Response: The factors in Table A-18 are from the past AOR submittals. The emission factor of 1.40 lb/10^6 scf of natural gas in Table A-18 was the emission factor that was used in the 1996, 1997, 1998, and 1999 AOR submittals for the No. 2 Power Boiler. Table A-13 shows that the emission factor of 1.40 lb/10^6 scf of natural gas was also reported in the 1996, 1997, 1998, and 1999 AOR submittals for the No. 1 Power Boiler. This emission factor was reported in AP-42 at that time. For the years 2000 through the most current AOR, the emission factor of 5.5 lb/10^6 scf of natural gas was used, which represents the current AP-42 emission factor. This value was used for all years in the "revised emission factors" in Tables A-14 and A-19 for the Nos. 1 and 2 Power Boilers in order to calculate the baseline actual VOC emissions.

Comment 14. **<u>Fuel Fired in No. 2 Power Boiler:</u> In Table A-18, natural gas is the only fuel listed as being burned in the boiler since 1996, yet in the Title V Air Operation Permit, No. 123001-016-AV, issued 01/16/2005, the boiler is allowed to fire the following fuels:**

B.2. Methods of Operation. This boiler may be fired with:

1. **Natural gas.**
2. **No. 6 fuel oil with a sulfur content that shall not exceed 2.5 percent by weight and may include facility-generated used oil.**
3. **No. 2 fuel oil (typically used as a pilot fuel during startups, shutdowns, malfunctions and for dry out fires after a water wash).**

[Rule 62-213.410, F.A.C.; Rule 62-210.700, F.A.C.]

Has any fuel besides natural gas been fired in the boiler since 1996? If so, then please identify the fuels, the amounts fired, and correct the table.

Response: No fuel other than natural gas has been fired by the No. 2 Power Boiler since 1996.

Comment 15. **Nitrogen Content of BLS: Based on actual fuel analyses, what is the current nitrogen content of the BLS? Once the solids content of the BLS is increased to 72%, what will be the nitrogen content (percent by weight)?**

Response: The percent nitrogen in the fuel varies from 0.05 to 0.15 percent, with an average of 0.09 percent on a dry basis. When the solids content of the black liquor reaches 72 percent, the nitrogen content will still be approximately 0.09 percent on a dry basis. The nitrogen content would be approximately 0.06 percent by weight on a wet basis at a solids content of 72 percent.

Comment 16. **Discussion of NO_x Emissions: Based on the NCASI information provided, the primary contributor to NO_x emissions is the fuel-bound nitrogen levels of the BLS. Also according to the NCASI information, the boiler conversion will cause NO_x emissions to increase (perhaps by 40 percent). Pages 5-17 and 5-18 of the PSD report states, "CO generation is inversely proportional to NO_x generation". Does this relationship for conventional combustion sources hold true for recovery boilers? If so, CO emissions after the conversion should decrease. Please comment.**

Response: According to NCASI Technical Bulletin No. 884, carbon monoxide is a product of incomplete combustion, can fluctuate widely, and can vary between recovery furnaces. CO levels are affected by swings in liquor firing rates and liquor solids content. Tables 4.11 and 4.12 show that there was no difference in CO emissions between DCE and NDCE recovery boilers. The NO_x emissions are shown to be higher in NDCE recovery furnaces in comparison to DCE recovery furnaces.

In the application for the Buckeye Energy Independence Project, the projected actual NO_x and CO emissions were based on proposed limits of 80 ppm at 8 percent O_2 for NO_x and 400 ppm at 8 percent O_2 for CO. These limits are based on proposed BACT limits and are the same as the BACT limits for Georgia-Pacific's No. 4 Recovery Boiler at Palatka.

Comment 17. **Other Recovery Boilers: Does Buckeye operate any other plants with low-odor, NDCE recovery boilers? Please identify each plant and for each recovery boiler: the capacity, installed control equipment, emissions standards, and test data.**

Response: Buckeye does not operate any other plants with low-odor, NDCE recovery boilers. The No. 4 Recovery Boiler (EU 011) at the Foley Mill however, is a NDCE recovery boiler. The No. 4 Recovery Boiler has a maximum BLS firing rate of 123,825 lb/hr. The recovery boiler has a high efficiency electrostatic precipitator installed in order to control PM emissions. The recovery boiler has PM and TRS emission standards. The PM emission standard is 3 pounds of PM per 3,000 pounds of BLS fired and 0.044 gr/dscf at 8 percent O_2. The TRS emission standard is 5 ppmvd corrected to 8 percent O_2. There are continuous monitors installed on the recovery boiler that measure the TRS and O_2 levels from the boiler. A continuous VE monitor has also been installed in order to measure the opacity of the gas coming out of the recovery boiler stack. The average of PM stack tests over the last four years is 0.019 gr/dscf at 8 percent O_2, with a range of 0.016 to 0.021 gr/dscf at 8 percent O_2. The maximum annual average CEMS value for TRS emissions since 2000 is 0.0180 lb/ton BLS fired.

Comment 18. **<u>SNCR and SCR Control Systems:</u> Is Buckeye or Golder aware of any SNCR or SCR control systems installed on recovery boilers? Please identify any units with the controls, the control equipment, control efficiencies, NO_x emissions standards, and actual NO_x emissions rates.**

Response: It is the understanding of Buckeye and Golder that there are no recovery boilers in the United States with SNCR or SCR control systems installed.

Comment 19. **<u>CEMS:</u> Do the recovery boilers currently have any installed continuous emissions monitoring systems (CEMS)?**

Response: The Nos. 2, 3, and 4 Recovery Boilers (EUs 006, 007, 011) have required TRS, O_2, and VE continuous monitors installed. These recovery boilers also have CO process monitors installed, but are not required by the facility Title V operating permit. The No. 4 Recovery Boiler has an SO_2 continuous monitor which is used for internal process control.

Comment 20. **<u>Handling of NCG:</u> Under the proposal, the bark boilers are going to be base loaded to burn more hog fuel (bark and waste wood) and the power boilers are going to be idled down to conserve on the use of fuel oil. Bark Boiler No. 1 is designated as the primary destructor of the non-condensable gases (NCG), with the Power Boiler No. 1 designated as the backup destructor for the NCG. Please explain how the plant will handle diversions of the NCG from the No. 1 Bark Boiler during outages, startups, shutdowns, and malfunctions. While the No. 1 Bark Boiler is in operation and experiences an upset such that the NCG must be diverted, will the Power Boiler No. 1 be operating at such a level that the NCG can be immediately diverted to it and subjected to a 0.5 second retention time and a minimum temperature of 1200°F? How will excursions without control be documented and handled?**

Response: The backup destruction device for NCGs, the No. 1 Power Boiler, is intended to be used during planned (multiple-day) outages of the primary destruction device for NCGs, which is the No. 1 Bark Boiler. During these planned outages, the No. 1 Power Boiler is fully operational and meets the combustion requirements. Because the No. 1 Power Boiler burns fossil fuels rather than renewable fuels, it is often not fully functional (in standby mode) when not required for boiler maintenance outages.

The current Title V operating permit (Permit No. 1230001-016-AV) allows periods of excess emissions for up to one percent of the operating time of the MEE system (excluding periods of startup, shutdown, and malfunction). Buckeye has never exceeded this allotted time during its operation, and will not have any problems continuing to meet this requirement after the proposed changes outlined in this project. These periods of excess emissions are currently identified by an internal monitoring and communication system, reported immediately to the FDEP and reported again to FDEP in Buckeye's quarterly reports.

Comment 21. **<u>PSD Avoidance for SO_2:</u> For reasonable assurance purposes and for all of the SO_2 emitting emissions units affected by this project, how will the emissions cap to avoid PSD NSR review be continuously monitored and compliance demonstrated?**

Response: The SO_2 emissions will be capped by capping the amount of No. 6 Fuel Oil that can be burned in the No. 1 Power Boiler (EU 002), as well as restricting the maximum sulfur content of the fuel oil. The No. 1 Power Boiler will fire no more than 5,623,000 gallons per year of No. 6 fuel oil. The fuel oil will have a maximum sulfur content of 2.5 percent. Records will be kept to indicate the amount of fuel oil fired by the No. 1 Power Boiler as well as the sulfur content of the fuel oil.

Comment 22. **Supporting Documentation: Regarding the reference material cited in the Appendix A tables, please provide the following documents:**

a. NCASI Technical Bulletin No. 94
b. NCASI Technical Bulletin No. 416
c. NCASI Technical Bulletin No. 701
d. NCASI Technical Bulletin No. 858
e. NCASI Special Report #93-03
f. NCASI Special Report #03-06
g. NCASI Environmental Resource Handbook – Chemical Recovery Process (Tables A-1 & A-7)
h. NCASI Environmental Resources Handbook 3-02 (Tables A-23 & A-29)

We have Technical Bulletin No. 650, which is dated June 1993. Please provide any updates to this bulletin.

Response: The requested reference materials were referenced in Tables A-1, A-7, A-13, A-18, A-23, A-29, and A-35, which are the references found in the facility AOR submittals. Therefore, copies of these references were not provided. The emission factors used for the "revised emission factors" in Tables A-2, A-8, A-14, A-19, A-24, A-30, and A-36 are the factors used to calculate the baseline emissions for the affected emissions units. The references used in these Tables are AP-42 Sections 1.3 and 1.4 and NCASI Technical Bulletin Nos. 858 and 884. The emission factors used in calculating the projected actual and future potential emissions were from the same reference sources. These references were provided in the application as Appendix C.

Air Quality Modeling Issues – from RAI dated January 25, 2008

Comment 1. **PM_{10} modeling. 24-hour emission inputs for PM_{10} for Recovery Boilers 2 and 3 were 0.54 and 0.92 g/s instead of 1.054 and 1.042 g/s as shown in the short-term section of Table 2.3. These emission rates were used in all of the significant impact analyses for PM_{10}. Please remodel using the appropriate values.**

Response: The PM_{10} emissions have been corrected in the modeling analysis. The maximum predicted PM_{10} impacts are still below the significant impact levels. The corrected tables of the modeling report have been included as Attachment E of this response.

Comment 2. **NO_2 modeling. The CALPUFF NO_2 Class I proposed project (significant impact) modeling analysis was done using short-term emission rates instead of annual emission rates. Please remodel using the correct values.**

Response: The NO_2 emissions have been corrected in the modeling analysis. The maximum predicted NO_2 impacts are still below the significant impact levels. The corrected tables of the modeling report have been included as Attachment E of this response.

Comment 3. A $PM_{2.5}$ analysis using PM_{10} as a surrogate needs to be submitted.

Response: A $PM_{2.5}$ emissions analysis has been performed and the emission results have been included in the updated PSD report tables included as Attachment C of this response.

Thank you for consideration of this information. If you have any questions, please do not hesitate to call me at (352)336-5600.

Sincerely,

GOLDER ASSOCIATES INC.

David A. Buff

David A. Buff, P.E., Q.E.P.
Principal Engineer

DB/SL

cc: Mr. Dave Weeden, Buckeye Florida, Limited Partnership

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APPLICATION INFORMATION

Professional Engineer Certification

1.	Professional Engineer Name: **David A. Buff** Registration Number: **19011**
2.	Professional Engineer Mailing Address... Organization/Firm: **Golder Associates Inc.**** Street Address: **6241 NW 23rd Street, Suite 500** City: **Gainesville** State: **FL** Zip Code: **32653**
3.	Professional Engineer Telephone Numbers... Telephone: **(352) 336-5600** ext.**545** Fax: **(352) 336-6603**
4.	Professional Engineer Email Address: **dbuff@golder.com**
5.	Professional Engineer Statement: *I, the undersigned, hereby certify, except as particularly noted herein*, that:* *(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this application for air permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and* *(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.* *(3) If the purpose of this application is to obtain a Title V air operation permit (check here ☐, if so), I further certify that each emissions unit described in this application for air permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance plan and schedule is submitted with this application.* *(4) If the purpose of this application is to obtain an air construction permit (check here ☒, if so) or concurrently process and obtain an air construction permit and a Title V air operation permit revision or renewal for one or more proposed new or modified emissions units (check here ☐, if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.* *(5) If the purpose of this application is to obtain an initial air operation permit or operation permit revision or renewal for one or more newly constructed or modified emissions units (check here ☐, if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.* David A. Buff 3/31/08 Signature Date (seal)

* Attach any exception to certification statement.
** **Board of Professional Engineers Certificate of Authorization #00001670**

ATTACHMENT A

NOS. 2 AND 3 RECOVERY BOILERS OIL BURNER DATA

Buff, Dave

From:	Dave Weeden [Dave_Weeden@bkitech.com]
Sent:	Thursday, March 20, 2008 10:48 AM
To:	Buff, Dave
Subject:	Buckeye RAI Response
Attachments:	SKMBT_60008032010260.pdf

Dave,

Attached is a document with two pages that show the basis for our response to the DEP question about oil burner capacity.

The first page is an email from B&W stating that Buckeye's #2 RB was supplied with 8 burners, each rated at 40 MKB/hr.

The second page is a Safeguard Study on #3 RB that shows we have 4 burners rated at 17 MMBtu/hr @ 80 psig. It also shows that actual oil pressure is 100 psig. This difference calculates to ~ 20 MMBtu/hr at the burner.

Let me know if you have further questions. If not, I assume you have what you need to finalize and send this RAI response.

Thanks,
Dave

Dave Weeden
Environmental Program Manager
Buckeye Technologies, Inc.
One Buckeye Drive
Perry, FL 32348

(850) 584-1398
dave_weeden@bkitech.com

-----Original Message-----
From: fo_scanner [mailto:fo_scanner]
Sent: Thursday, March 20, 2008 11:28 AM
To: Dave Weeden
Subject: Message from KMBT_600

Sonny Brooks

From: Sherlock, Bentley [hbsherlock@babcock.com]
Sent: Thursday, May 18, 2006 4:30 PM
To: Sonny Brooks
Cc: Dave Streit; Jim Lee; Burkhardt, John A; Kittel, David L
Subject: Buckeye-Florida; PR-40; No. 2 Recovery Boiler Auxiliary Fuel Oil Firing Data

40,000,000 BTU/hr
10 MKB

Sonny,

According to my files, the burners for PR-40 were supplied under contract SC-1771. There were 8 burners on that order for PR-40 for a total boiler load on oil only of about 87.5%. Each burner was rated at 40 MKB/hr. The burners appear to have been sized for #2 oil.

I can't explain the discrepancy with the operating manual.

- The average #2 oil flow rate for the 6Y-32-49-37-70S plate is 2400 lb/hr at 75 psig of oil pressure.
- The average #6 oil flow rate on the same plate is 1845 lb/hr at 75 psig of oil pressure.

18,500 BTU/LB

If you want to get to 40 MKB on #6 oil, you probably need to switch to a 5y-29-44-31-70S. This should be confirmed with our burner technology group before any new plates are ordered.

- Atomizing steam pressure should be about 40 psi above oil pressure.

Oil flow is roughly linear with oil pressure. ?

All the above values are based on an oil viscosity of 135 SSU. Oil temperature should be adjusted to achieve the proper oil viscosity.

Using This DATA, FIRING #6 OIL with these tips,
Pressure max = 102.9 PSI
Volume = 4.32 Per Burner
8 Burners = 34.6 GPM TOTAL

75 PSIG

STEAM OVER OIL 40PSIG ΔP

135 SSU

SG of #6 Fuel oil = ~.993

$75 \times 1.25 = 93.75$ PSIG

Bentley
H. Bentley Sherlock, Jr.
District Engineer
Atlanta Industrial District
The Babcock & Wilcox Company
770-621-3947 phone
678-772-7347 cell
330-860-8971 fax to e-mail

$\frac{1845\ LB}{hr} \times \frac{hr}{60\ min} \times \frac{gal}{8.33\ LB} = \boxed{3.69\ gpm\ Per\ Burner}$

$3.69 \times 8\ \text{Burners} = \boxed{29.5\ gpm\ @\ \text{DESIGN RATE}}$ (87% MCR)

$2162\ LB/hr = 4.32\ gpm \times 8 = \boxed{34.6\ gpm\ @\ MCR}$ (100% MCR)

$\frac{18,500\ BTU}{LB} \times \frac{1845\ LB}{hr} = 34.1$ MKB

AT 40 MKB $= \frac{18,500\ BTU}{LB} \times \frac{x\ LB}{hr}$

$x = 2162$ LB/hr Flow

-----Original Message-----
From: Sonny Brooks [mailto:Sonny_Brooks@BKITECH.COM]
Sent: Tuesday, May 16, 2006 4:53 PM
To: Sherlock, Bentley
Cc: Dave Streit; Jim Lee
Subject: Buckeye's No. 2 Recovery Boiler Auxiliary Fuel Oil Firing Data

Mr. Sherlock,

I am working on a combustion safety study for Buckeye's No. 2 Recovery Boiler, B&W Contract no. PR-40 and I need some help. I have not been able to find much data on the auxiliary fuel firing so that I may verify safeguard settings. Currently we have eight Y-Jet steam atomizing oil burners with 6Y-32-49-37-70S sprayer plates. What is the design supply pressure and volume conditions for these burners at MCR? Also, what is the required steam over oil pressure? Would you have oil flow vs

$\frac{1845}{2162} \quad \frac{Q_1}{Q_2} \quad \frac{P_1\ 75}{P_2\ x}$

$P_2 = P_1 (Q_2/Q_1)^2$

$P_2 = 75(2162/1845)^2 = \boxed{102.9\ PSI}$

COMBUSTION SAFEGUARDS
BURNER SPECIFICATION SHEET

By: H. A. Brooks **Date:** 7/14/2003
Plant: Foley **Project:** Safeguard Study
Boiler/Combustion Unit: No. 3 Recovery Boiler

Burner Manufacturer:	Combustion Engineering	Boiler/Combustor Manufacturer:	C&E
Burner Model Number:	Starting Burner with Type WRH Oil Gun	Manufacturer Rated Input:	PPH Gas:
Number of Burners:	4		GPH Oil:
CEI drawing no. E477-296, and C470-902		Heating Surface Ft^2: Steam Lb/hr	
#2 FUEL OIL		#6 FUEL OIL	
Burner Oil Type:	#2 Fuel Oil (Diesel)	Burner Oil Type:	#6 Fuel Oil (Bunker C)
BTU/LB:		BTU/LB:	17,500 Design 18,500 Actual
Burner Mfg Rating-Oil MM BTU/HR:		Burner Mfg Rating-Oil MM BTU/HR:	17 per burner
Oil Specific Gravity		Oil Specific Gravity	0.993
Oil Specific Gravity		Oil Capacity @ Rating:	971 PPH/burner
Oil Viscosity SSU:		Oil Viscosity SSU:	
Oil Temperature °F		Oil Temperature °F	200
Oil Pressure @ Burner Nozzle PSIG:	@Lightoff: @Rating:	Oil Pressure @ Burner Nozzle PSIG:	@Lightoff: @Rating: 80
Oil Supply Header Pressure PSIG:		Oil Supply Header Pressure PSIG:	100
Atomizing Steam Press. @ Nozzle PSIG:	@Lightoff: @Rating:	Atomizing Steam Press. @ Nozzle PSIG:	@Lightoff: @Rating:
Atomizing Steam supply Pressure PSIG:	150	Atomizing Steam supply Pressure PSIG:	150
Steam/Oil ΔP:	15-20 psig	Steam/Oil ΔP:	, (Differential valve set @ 15-20 psig.)
Atomizing Steam Volume PPH:		Atomizing Steam Volume PPH:	
IGNITOR			
Gas Ignitor Rating BTU/HR:	750,000	:Ignitor Gas Supply Pressure PSIG:	3
Ignitor Gas Capacity CFH:		Igniter NFPA Class:	3
COMBUSTION AIR - FD FAN			
Forced Draft Fan Manufacturer:		Exp. Perform Air @MCR for Oil:	
Model No:		Exp. Perform Air @MCR for Gas:	
:		F. D. Fan Rating:	
ID Fan			
ID Fan		ID Fan Rating:	

*Calculated using the CE original expected performance data found in the design summary.

ATTACHMENT B

REVISED APPLICATION FORM PAGES

B. EMISSIONS UNIT CAPACITY INFORMATION

(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate: **97,600 lb BLS/hr**			
2. Maximum Production Rate:			
3. Maximum Heat Input Rate: **624.6** million Btu/hr			
4. Maximum Incineration Rate:	pounds/hr tons/day		
5. Requested Maximum Operating Schedule:			
	24 hours/day		**7** days/week
	52 weeks/year		**8,760** hours/year
6. Operating Capacity/Schedule Comment: **Maximum heat input rate based on 6,400 Btu/lb of BLS.**			

EMISSIONS UNIT INFORMATION
Section [3]
No. 2 Recovery Boiler

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 1 of 5

1. Segment Description (Process/Fuel Type): **External Combustion Boilers; Industrial; Residual Oil; Grade 6 Oil**		
2. Source Classification Code (SCC): **1-02-004-01**	3. SCC Units: **1,000 Gallons Residual Oil Burned**	
4. Maximum Hourly Rate: **2.192**	5. Maximum Annual Rate: **1,700**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: **2.5**	8. Maximum % Ash: **0.1**	9. Million Btu per SCC Unit: **146**
10. Segment Comment: **To be used as primary fuel during startups, shutdowns, malfunctions, or temporary loss of BLS. No. 6 fuel oil may contain facility-generated used oil. Hourly rate based on 320 MMBtu/hr. Annual rate based on maximum proposed fuel usage.**		

Segment Description and Rate: Segment 2 of 5

1. Segment Description (Process/Fuel Type): **External Combustion; Industrial; Distillate Oil; Grades 1 and 2 Oil**		
2. Source Classification Code (SCC): **1-02-005-01**	3. SCC Units: **1,000 Gallons Distillate Oil Burned**	
4. Maximum Hourly Rate: **2.192**	5. Maximum Annual Rate: **50**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: **0.5**	8. Maximum % Ash:	9. Million Btu per SCC Unit: **136**
10. Segment Comment: **Used typically as a pilot fuel during startups, shutdowns, malfunctions, and for dry out fires after a water wash. Limited to 50,000 gallons per year. Hourly rate based on No. 6 fuel oil rate.**		

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 3 of 5

1. Segment Description (Process/Fuel Type): **External Combustion Boilers; Industrial; Natural Gas; > 100 MMBtu/hr**		
2. Source Classification Code (SCC): **1-02-006-01**	3. SCC Units: **Million Cubic Feet Natural Gas Burned**	
4. Maximum Hourly Rate: **0.3**	5. Maximum Annual Rate: **6.8**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: **1,000**
10. Segment Comment: **Used typically as a pilot fuel during startups, shutdowns, malfunctions, and for dry out fires after a water wash. Maximum annual rate based on same heat input as for No. 2 fuel oil.**		

Segment Description and Rate: Segment 4 of 5

1. Segment Description (Process/Fuel Type): **External Combustion Boilers; Industrial; Liquid Waste (see Segment Comment)**		
2. Source Classification Code (SCC): **1-02-013-01**	3. SCC Units: **1,000 Gallons Liquid Waste Burned**	
4. Maximum Hourly Rate: **2.192**	5. Maximum Annual Rate: **1,700**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: **0.05**	8. Maximum % Ash:	9. Million Btu per SCC Unit: **142**
10. Segment Comment: **Facility-generated tall oil. Must be blended with No. 6 fuel oil. Rate based on No. 6 fuel oil usage rate.**		

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 5 of 5

1. Segment Description (Process/Fuel Type): **Industrial Processes; Pulp and Paper and Wood Products; Sulfate (Kraft) Pulping; Recovery Furnace/Direct Contact Evaporator**		
2. Source Classification Code (SCC): **3-07-001-04**	3. SCC Units: **Tons Air-Dried Unbleached Pulp Produced**	
4. Maximum Hourly Rate: **32.53**	5. Maximum Annual Rate: **284,992**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment: **Based on 97,600 lb/hr BLS and 1.5 ton BLS per ton Air-Dried Unbleached Pulp.**		

Segment Description and Rate: Segment _____ of _____

1. Segment Description (Process/Fuel Type):		
2. Source Classification Code (SCC):	3. SCC Units:	
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment:		

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **SO_2**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **860.27** lb/hour **484.6** tons/year	4. Synthetically Limited? ☒ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **157(S) lb/10^3 gal No. 6 fuel oil** Reference: **AP-42**	7. Emissions Method Code: **0**
8.a. Baseline Actual Emissions (if required): **613.59** tons/year	8.b. Baseline 24-month Period: From: **1/04** To: **12/05**
9.a. Projected Actual Emissions (if required): **343.41** tons/year	9.b. Projected Monitoring Period: ☒ 5 years ☐ 10 years

10. Calculation of Emissions:

Hourly:

Fuel Oil: (157*2.5) lb/1,000 gal x 320 MMBtu/hr x 1,000 gal/146 MMBtu = 860.27 lb/hr
BLS: 48.8 ton/hr x 0.74 lb/ton = 36.11 lb/hr

Annual:

Fuel Oil:
1,700,000 gal x 146,000 Btu/gal x 1 MMBtu/1,000,000 Btu = 248,200 MMBtu/yr
(157*2.5) lb/1,000 gal x 1,700,000 gal x 1 ton/2,000 lb = 333.6 TPY

BLS:
(48.8 ton/hr x 12.8 MMBtu/ton x 8,760 hr/yr) – 248,200 MMBtu/yr = 5,223,646.4 MMBtu/yr
5,223,646.4 MMBtu/yr x 1 ton/12.8 MMBtu x 0.74 lb/ton x 1 ton/2,000 lb = 151.0 TPY

Total: 333.6 TPY from Fuel Oil + 151.0 TPY from BLS = 484.6 TPY

11. Potential Fugitive and Actual Emissions Comment:
Emission factor for BLS firing based on NCASI Technical Bulletin No. 884.

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: **2.5% Sulfur in Fuel**	4. Equivalent Allowable Emissions: **860.27** lb/hour **333.6** tons/year
5. Method of Compliance: **Compliance test using fuel analysis and equation in comment.**	
6. Allowable Emissions Comment (Description of Operating Method): **Compliance test using fuel analysis and the following equation: [157(S)/1000] x gal/hr = lbs SO_2/hr**	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **NO_x**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **103.01** lb/hour **334.1** tons/year	4. Synthetically Limited? ☒ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **80 ppmvd @ 8% O_2** Reference: **Proposed BACT Limit**	7. Emissions Method Code: **0**
8.a. Baseline Actual Emissions (if required): **245.03** tons/year	8.b. Baseline 24-month Period: From: **1/04** To: **12/05**
9.a. Projected Actual Emissions (if required): **318.81** tons/year	9.b. Projected Monitoring Period: ☒ 5 years ☐ 10 years

10. Calculation of Emissions:

Hourly: 47 lb/1,000 gal x 320 MMBtu/hr x 1,000 gal/146 MMBtu = 103.01 lb/hr

Annual:

Fuel Oil:

1,700,000 gal x 146,000 Btu/gal x 1 MMBtu/1,000,000 Btu = 248,200 MMBtu/yr
47 lb/1,000 gal x 1,700,000 gal x 1 ton/2,000 lb = 39.95 TPY

BLS:

48.8 ton/hr x 12.8 MMBtu/ton x 8,760 hr/yr = 5,471,846.4 MMBtu/yr
248,200 MMBtu/yr / 5,471,846.4 MMBtu/yr = 4.536% from Fuel Oil / 95.464% from BLS
NO_x (lb/hr) = 80 ppm/10^6 x 122,849 dscf/min x 60 min/hr x 2,116.8 lb_f/ft^2 x lb-mole-°R /1,545.6 ft-lb_f x 1/528°R x 46 lb/lb-mol = 70.36 lb/hr
70.36 lb/hr x 8,760 hr/yr x 1 ton/2,000 lb = 308.17 TPY
Max Fuel Oil + BLS:
70.36 lb/hr x 8,760 hr/yr x 0.95464 x ton/2,000 lb = 294.19 TPY

Total: 39.95 TPY from Fuel Oil + 294.19 TPY from BLS = 334.14 TPY

11. Potential Fugitive and Actual Emissions Comment:

Emission factor of 80 ppmvd @ 8% O_2 based on proposed limit while firing BLS (see PSD Report).

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **OTHER**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: **80 ppmvd @ 8% O_2 when firing BLS**	4. Equivalent Allowable Emissions: **70.36** lb/hour **308.17** tons/year
5. Method of Compliance: **ECA Method 7 or 7E**	
6. Allowable Emissions Comment (Description of Operating Method): **Proposed NO_X limit after low-odor conversion (see PSD Report).**	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

B. EMISSIONS UNIT CAPACITY INFORMATION

(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate: **82,350 lb BLS/hr**	
2. Maximum Production Rate:	
3. Maximum Heat Input Rate: **527.0** million Btu/hr	
4. Maximum Incineration Rate: pounds/hr tons/day	
5. Requested Maximum Operating Schedule: **24** hours/day **52** weeks/year	 **7** days/week **8,760** hours/year
6. Operating Capacity/Schedule Comment: **Maximum heat input rate based on 6,400 Btu/lb of BLS.**	

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 1 of 5

1. Segment Description (Process/Fuel Type): **External Combustion Boilers; Industrial; Residual Oil; Grade 6 Oil**		
2. Source Classification Code (SCC): **1-02-004-01**	3. SCC Units: **1,000 Gallons Residual Oil Burned**	
4. Maximum Hourly Rate: **0.548**	5. Maximum Annual Rate: **2,000**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: **2.5**	8. Maximum % Ash: **0.1**	9. Million Btu per SCC Unit: **146**
10. Segment Comment: **To be used as primary fuel during startups, shutdowns, malfunctions, or temporary loss of BLS. No. 6 fuel oil may contain facility-generated used oil. Hourly rate based on 80 MMBtu/hr. Annual rate based on proposed maximum usage of 2,000,000 gal/yr.**		

Segment Description and Rate: Segment 2 of 5

1. Segment Description (Process/Fuel Type): **External Combustion; Industrial; Distillate Oil; Grades 1 and 2 Oil**		
2. Source Classification Code (SCC): **1-02-005-01**	3. SCC Units: **1,000 Gallons Distillate Oil Burned**	
4. Maximum Hourly Rate: **0.548**	5. Maximum Annual Rate: **50**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: **0.5**	8. Maximum % Ash:	9. Million Btu per SCC Unit: **136**
10. Segment Comment: **Used typically as a pilot fuel during startups, shutdowns, malfunctions, and for dry out fires after a water wash. Limited to 50,000 gallons per year. Max hourly based on No. 6 fuel oil rate.**		

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 3 of 5

1. Segment Description (Process/Fuel Type): **External Combustion Boilers; Industrial; Natural Gas; > 100 MMBtu/hr**		
2. Source Classification Code (SCC): **1-02-006-01**	3. SCC Units: **Million Cubic Feet Natural Gas Burned**	
4. Maximum Hourly Rate: **0.3**	5. Maximum Annual Rate: **6.7**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: **1,000**
10. Segment Comment: **Used typically as a pilot fuel during startups, shutdowns, malfunctions, and for dry out fires after a water wash. Maximum annual rate based on same heat input as for No. 2 fuel oil.**		

Segment Description and Rate: Segment 4 of 5

1. Segment Description (Process/Fuel Type): **External Combustion Boilers; Industrial; Liquid Waste (see Segment Comment)**		
2. Source Classification Code (SCC): **1-02-013-01**	3. SCC Units: **1,000 Gallons Liquid Waste Burned**	
4. Maximum Hourly Rate: **0.548**	5. Maximum Annual Rate: **2,000**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: **0.05**	8. Maximum % Ash:	9. Million Btu per SCC Unit: **142**
10. Segment Comment: **Facility-generated tall oil. Must be blended with No. 6 fuel oil. Rate based on No. 6 fuel oil usage rate.**		

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 5 of 5

1. Segment Description (Process/Fuel Type): **Industrial Processes; Pulp and Paper and Wood Products; Sulfate (Kraft) Pulping; Recovery Furnace/Direct Contact Evaporator**		
2. Source Classification Code (SCC): **3-07-001-04**	3. SCC Units: **Tons Air-Dried Unbleached Pulp Produced**	
4. Maximum Hourly Rate: **27.45**	5. Maximum Annual Rate: **240,462**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment: **Based on 82,350 lb/hr BLS and 1.5 ton BLS per ton Air-Dried Unbleached Pulp.**		

Segment Description and Rate: Segment _____ of _____

1. Segment Description (Process/Fuel Type):		
2. Source Classification Code (SCC):	3. SCC Units:	
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment:		

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **SO_2**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **215.07** lb/hour **517.52** tons/year	4. Synthetically Limited? ☒ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **157(S) lb/10^3 gal No. 6 fuel oil** Reference: **AP-42**	7. Emissions Method Code: **0**
8.a. Baseline Actual Emissions (if required): **544.46** tons/year	8.b. Baseline 24-month Period: From: **1/04** To: **12/05**
9.a. Projected Actual Emissions (if required): **369.76** tons/year	9.b. Projected Monitoring Period: ☒ 5 years ☐ 10 years

10. Calculation of Emissions:

Hourly:

Fuel Oil: (157*2.5) lb/1,000 gal x 80 MMBtu/hr x 1,000 gal/146 MMBtu = 215.07 lb/hr
BLS: 41.175 ton/hr x 0.74 lb/ton = 30.47 lb/hr

Annual:

Fuel Oil:
2,000,000 gal x 146,000 Btu/gal x 1 MMBtu/1,000,000 Btu = 292,000 MMBtu/yr
(157*2.5) lb/1,000 gal x 2,000,000 gal x 1 ton/2,000 lb = 392.50 TPY
BLS:
(41.175 ton/hr x 12.8 MMBtu/ton x 8,760 hr/yr)–292,000 MMBtu/yr = 4,324,870.4 MMBtu/yr
4,324,870.4 MMBtu/yr x 1 ton/12.8 MMBtu x 0.74 lb/ton x 1 ton/2,000 lb = 125.02 TPY

Total: 392.50 TPY from Fuel Oil + 125.02 TPY from BLS = 517.52 TPY

11. Potential Fugitive and Actual Emissions Comment:
Emission factor for BLS firing based on NCASI Technical Bulletin No. 884.

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: **2.5% Sulfur in Fuel**	4. Equivalent Allowable Emissions: **215.07** lb/hour **392.50** tons/year
5. Method of Compliance: **Compliance test using fuel analysis and equation in comment.**	
6. Allowable Emissions Comment (Description of Operating Method): **Compliance test using fuel analysis and the following equation: [157(S)/1000] x gal/hr = lbs SO_2/hr**	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **NO_x**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **25.75** lb/hour **327.34** tons/year	4. Synthetically Limited? ☒ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **80 ppmvd @ 8% O_2** Reference: **Proposed BACT Limit**	7. Emissions Method Code: **0**
8.a. Baseline Actual Emissions (if required): **207.42** tons/year	8.b. Baseline 24-month Period: From: **1/04** To: **12/05**
9.a. Projected Actual Emissions (if required): **309.98** tons/year	9.b. Projected Monitoring Period: ☒ 5 years ☐ 10 years

10. Calculation of Emissions:

Hourly: 47 lb/1,000 gal x 80 MMBtu/hr x 1,000 gal/146 MMBtu = 25.75 lb/hr

Annual:

Fuel Oil:

2,000,000 gal x 146,000 Btu/gal x 1 MMBtu/1,000,000 Btu = 292,000 MMBtu/yr
47 lb/1,000 gal x 2,000,000 gal x 1 ton/2,000 lb = 47.00 TPY

BLS:

41.175 ton/hr x 12.8 MMBtu/ton x 8,760 hr/yr = 4,616,870.4 MMBtu/yr
292,000 MMBtu/yr / 4,616,870.4 MMBtu/yr = 6.325% from Fuel Oil / 93.675% from BLS
NO_x (lb/hr) = 80 ppm/10^6 x 119,300 dscf/min x 60 min/hr x 2,116.8 lb_f/ft^2 x lb-mole-°R/1,545.6 ft-lb_f x 1/528°R x 46 lb/lb-mol = 68.33 lb/hr
68.33 lb/hr x 8,760 hr/yr x ton/2,000 lb = 299.27 TPY

<u>Max Fuel Oil + BLS:</u>
68.33 lb/hr x 8,760 hr/yr x 0.93675 x ton/2,000 lb = 280.34 TPY

Total: 47.00 TPY from Fuel Oil + 280.34 TPY from BLS = 327.34 TPY

11. Potential Fugitive and Actual Emissions Comment:

Emission factor of 80 ppmvd @ 8% O_2 based on proposed limit while firing BLS (see PSD Report).

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **OTHER**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: **80 ppmvd @ 8% O_2 when firing BLS**	4. Equivalent Allowable Emissions: **68.33** lb/hour **299.27** tons/year
5. Method of Compliance: **EPA Method 7 or 7E**	
6. Allowable Emissions Comment (Description of Operating Method): **Proposed NO_x limit after low-odor conversion (see PSD Report).**	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

ATTACHMENT C

REVISED PSD REPORT TABLES

TABLE 2-1
BASELINE ACTUAL EMISSIONS
BUCKEYE ENERGY PROJECT, BUCKEYE FLORIDA

Source Description	EU ID	Highest 2-Year Average Calculation (TPY) Year 1	Year 2	Average
Sulfur Dioxide - SO_2		**2004**	**2005**	**'04 - '05**
- No. 2 Recovery Boiler	*006*	640.92	586.25	613.59
- BLO System for No. 2 Recovery Boiler		--	--	--
- No. 3 Recovery Boiler	*007*	605.08	483.85	544.46
- BLO System for No. 3 Recovery Boiler		--	--	--
- No. 1 Power Boiler	*002*	586.75	585.01	585.88
- No. 2 Power Boiler	*003*	0.08	0.06	0.07
- No. 1 Bark Boiler	*004*	56.85	71.03	63.94
- No. 2 Bark Boiler	*019*	69.87	70.31	70.09
Total:		**1,959.54**	**1,796.52**	**1,878.03**
Nitrogen Oxides - NO_X		**2004**	**2005**	**'04 - '05**
- No. 2 Recovery Boiler	*006*	248.19	241.88	245.03
- BLO System for No. 2 Recovery Boiler		--	--	--
- No. 3 Recovery Boiler	*007*	217.06	197.78	207.42
- BLO System for No. 3 Recovery Boiler		--	--	--
- No. 1 Power Boiler	*002*	100.35	113.83	107.09
- No. 2 Power Boiler	*003*	36.58	30.28	33.43
- No. 1 Bark Boiler	*004*	197.79	212.33	205.06
- No. 2 Bark Boiler	*019*	453.45	457.77	455.61
Total:		**1,253.43**	**1,253.87**	**1,253.65**
Carbon Monoxide - CO		**2005**	**2006**	**'05 - '06**
- No. 2 Recovery Boiler	*006*	244.34	242.93	243.63
- BLO System for No. 2 Recovery Boiler		--	--	--
- No. 3 Recovery Boiler	*007*	198.42	193.08	195.75
- BLO System for No. 3 Recovery Boiler		--	--	--
- No. 1 Power Boiler	*002*	12.96	15.81	14.38
- No. 2 Power Boiler	*003*	9.08	9.38	9.23
- No. 1 Bark Boiler	*004*	531.87	562.44	547.15
- No. 2 Bark Boiler	*019*	1,215.82	1,237.57	1,226.69
Total:		**2,212.49**	**2,261.20**	**2,236.84**
Particulate Matter Total - PM		**2004**	**2005**	**'04 - '05**
- No. 2 Recovery Boiler	*006*	84.85	62.37	73.61
- BLO System for No. 2 Recovery Boiler		0.98	0.98	0.98
- No. 3 Recovery Boiler	*007*	30.88	36.80	33.84
- BLO System for No. 3 Recovery Boiler		0.80	0.79	0.80
- No. 1 Power Boiler	*002*	41.11	41.86	41.48
- No. 2 Power Boiler	*003*	0.99	0.82	0.91
- No. 1 Bark Boiler	*004*	124.52	135.36	129.94
- No. 2 Bark Boiler	*019*	340.83	351.09	345.96
Total:		**624.96**	**630.07**	**627.52**
Particulate Matter - PM_{10}		**2004**	**2005**	**'04 - '05**
- No. 2 Recovery Boiler	*006*	65.16	47.89	56.52
- BLO System for No. 2 Recovery Boiler		0.98	0.98	0.98
- No. 3 Recovery Boiler	*007*	23.71	28.26	25.98
- BLO System for No. 3 Recovery Boiler		0.80	0.79	0.80
- No. 1 Power Boiler	*002*	35.36	36.02	35.69
- No. 2 Power Boiler	*003*	0.99	0.82	0.91
- No. 1 Bark Boiler	*004*	122.03	132.66	127.35
- No. 2 Bark Boiler	*019*	334.02	344.07	339.04
Total:		**583.05**	**591.49**	**587.27**
Particulate Matter - $PM_{2.5}$		**2005**	**2006**	**'05 - '06**
- No. 2 Recovery Boiler	*006*	33.30	33.87	33.58
- BLO System for No. 2 Recovery Boiler		0.98	0.97	0.98
- No. 3 Recovery Boiler	*007*	19.65	21.06	20.35
- BLO System for No. 3 Recovery Boiler		0.79	0.77	0.78
- No. 1 Power Boiler	*002*	23.49	14.12	18.81
- No. 2 Power Boiler	*003*	0.82	0.85	0.84
- No. 1 Bark Boiler	*004*	132.65	123.02	127.84
- No. 2 Bark Boiler	*019*	344.06	349.79	346.93
Total:		**555.74**	**544.46**	**550.10**
Volatile Organic Compounds - VOC		**2005**	**2006**	**'05 - '06**
- No. 2 Recovery Boiler	*006*	42.11	41.86	41.98
- BLO System for No. 2 Recovery Boiler		23.98	23.84	23.91
- No. 3 Recovery Boiler	*007*	34.17	33.16	33.67

TABLE 2-1
BASELINE ACTUAL EMISSIONS
BUCKEYE ENERGY PROJECT, BUCKEYE FLORIDA

Source Description	EU ID	Highest 2-Year Average Calculation (TPY) Year 1	Year 2	Average
- BLO System for No. 3 Recovery Boiler		19.46	18.86	19.16
- No. 1 Power Boiler	*002*	0.74	0.98	0.86
- No. 2 Power Boiler	*003*	0.59	0.61	0.60
- No. 1 Bark Boiler	*004*	30.14	31.87	31.00
- No. 2 Bark Boiler	*019*	68.90	70.13	69.51
Total:		**220.08**	**221.31**	**220.69**
Total Reduced Sulfur - TRS		**2004**	**2005**	**'04 - '05**
- No. 2 Recovery Boiler	*006*	16.51	16.92	16.71
- BLO System for No. 2 Recovery Boiler		18.41	18.42	18.42
- No. 3 Recovery Boiler	*007*	12.26	12.00	12.13
- BLO System for No. 3 Recovery Boiler		15.14	14.95	15.04
- No. 1 Power Boiler	*002*	--	--	--
- No. 2 Power Boiler	*003*	--	--	--
- No. 1 Bark Boiler	*004*	--	--	--
- No. 2 Bark Boiler	*019*	--	--	--
Total:		**62.31**	**62.29**	**62.30**
Sulfuric Acid Mist - SAM		**2004**	**2005**	**'04 - '05**
- No. 2 Recovery Boiler	*006*	28.20	25.80	27.00
- BLO System for No. 2 Recovery Boiler		--	--	--
- No. 3 Recovery Boiler	*007*	26.62	21.29	23.96
- BLO System for No. 3 Recovery Boiler		--	--	--
- No. 1 Power Boiler	*002*	25.82	25.74	25.78
- No. 2 Power Boiler	*003*	--	--	--
- No. 1 Bark Boiler	*004*	2.50	3.13	2.81
- No. 2 Bark Boiler	*019*	1.75	1.76	1.75
Total:		**84.89**	**77.71**	**81.30**
Lead - Pb		**2005**	**2006**	**'05 - '06**
- No. 2 Recovery Boiler	*006*	4.94E-03	4.92E-03	4.93E-03
- BLO System for No. 2 Recovery Boiler		--	--	--
- No. 3 Recovery Boiler	*007*	4.06E-03	4.16E-03	4.11E-03
- BLO System for No. 3 Recovery Boiler		--	--	--
- No. 1 Power Boiler	*002*	3.52E-03	1.86E-03	2.69E-03
- No. 2 Power Boiler	*003*	5.41E-05	5.58E-05	5.49E-05
- No. 1 Bark Boiler	*004*	3.59E-02	3.76E-02	3.68E-02
- No. 2 Bark Boiler	*019*	8.14E-02	8.27E-02	8.20E-02
Total:		**1.30E-01**	**1.31E-01**	**1.31E-01**
Mercury - Hg		**2004**	**2005**	**'04 - '05**
- No. 2 Recovery Boiler	*006*	8.66E-05	7.11E-05	7.88E-05
- BLO System for No. 2 Recovery Boiler		--	--	--
- No. 3 Recovery Boiler	*007*	1.02E-04	6.13E-05	8.19E-05
- BLO System for No. 3 Recovery Boiler		--	--	--
- No. 1 Power Boiler	*002*	2.37E-04	2.67E-04	2.52E-04
- No. 2 Power Boiler	*003*	3.40E-05	2.81E-05	3.10E-05
- No. 1 Bark Boiler	*004*	6.03E-04	6.44E-04	6.23E-04
- No. 2 Bark Boiler	*019*	1.39E-03	1.41E-03	1.40E-03
Total:		**2.46E-03**	**2.48E-03**	**2.47E-03**
Fluorides - F		**2003**	**2004**	**'03 - '04**
- No. 2 Recovery Boiler	*006*	0.025	0.024	0.024
- BLO System for No. 2 Recovery Boiler		--	--	--
- No. 3 Recovery Boiler	*007*	0.032	0.030	0.031
- BLO System for No. 3 Recovery Boiler		--	--	--
- No. 1 Power Boiler	*002*	0.073	0.077	0.075
- No. 2 Power Boiler	*003*	--	--	--
- No. 1 Bark Boiler	*004*	0.009	0.010	0.009
- No. 2 Bark Boiler	*019*	0.016	0.009	0.012
Total:		**0.154**	**0.150**	**0.152**

TABLE 2-2
PROJECTED ACTUAL EMISSIONS
PHASE I, BUCKEYE ENERGY PROJECT, BUCKEYE FLORIDA

Pollutant	Emission Factor	Ref.	Activity Factor	Ref.	Annual Emissions (TPY)
Sulfur Dioxide - SO_2					
No. 2 Recovery Boiler (EU 006)	298.3 lb/10^3 gal No. 6 Fuel Oil	1	1,311 10^3 gal/yr	15	195.59
	0.74 lb/ton BLS	2	399,496 ton BLS/yr	16	147.81
BL Concentrator for No. 2 Recovery Boiler	0.056 lb/ton BLS	3	535,919 ton BLS/yr	17	15.01
				Total:	**358.41**
Nitrogen Oxides - NO_x					
No. 2 Recovery Boiler (EU 006)	47 lb/10^3 gal No. 6 Fuel Oil	1	1,311 10^3 gal/yr	15	30.82
	1.44 lb/ton BLS	4	399,496 ton BLS/yr	16	287.99
				Total:	**318.81**
Carbon Monoxide - CO					
No. 2 Recovery Boiler (EU 006)	5 lb/10^3 gal No. 6 Fuel Oil	1	1,311 10^3 gal/yr	15	3.28
	4.39 lb/ton BLS	4	399,496 ton BLS/yr	16	876.50
				Total:	**879.78**
Particulate Matter Total - PM					
No. 2 Recovery Boiler (EU 006)	0.10 lb/10^3 gal No. 6 Fuel Oil	5	1,311 10^3 gal/yr	15	0.07
	0.65 lb/ton BLS	4	399,496 ton BLS/yr	16	129.30
				Total:	**129.37**
Particulate Matter - PM_{10}					
No. 2 Recovery Boiler (EU 006)	63 % of PM from No. 6 Fuel Oil	6	-- --	--	0.04
	71.3 % of PM from BLS	2	-- --	--	92.19
				Total:	**92.24**
Particulate Matter - $PM_{2.5}$					
No. 2 Recovery Boiler (EU 006)	41 % of PM from No. 6 Fuel Oil	6	-- --	--	0.03
	49.8 % of PM from BLS	2	-- --	--	64.39
				Total:	**64.42**
Volatile Organic Compounds - VOC					
No. 2 Recovery Boiler (EU 006)	0.28 lb/10^3 gal No. 6 Fuel Oil	7	1,311 10^3 gal/yr	15	0.18
	0.09 lb/ton BLS	2	399,496 ton BLS/yr	16	17.98
BL Concentrator for No. 2 Recovery Boiler	0.0024 lb/ton BLS	8	535,919 ton BLS/yr	17	0.63
BL Storage Tank	0.11 lb/hr	9	8,760 hr/yr	18	0.48
				Total:	**19.28**
Total Reduced Sulfur - TRS					
No. 2 Recovery Boiler (EU 006)	5 ppmvd @ 8% O_2	10	122,849 dscfm @ 8% O_2	19	14.24
BL Concentrator for No. 2 Recovery Boiler	0.00054 lb/ton BLS	11	535,919 ton BLS/yr	17	0.15
BL Storage Tank	0.18 lb/hr	9	8,760 hr/yr	18	0.79
				Total:	**15.17**
Sulfuric Acid Mist - SAM					
No. 2 Recovery Boiler (EU 006)	4.4 % of SO_2 from No. 6 Fuel Oil	12	-- --	--	8.70
	4.4 % of SO_2 from BLS	12	-- --	--	6.57
BL Concentrator for No. 2 Recovery Boiler	4.4 % of SO_2 from BLS	12	-- --	--	0.67
				Total:	**15.94**
Lead - Pb					
No. 2 Recovery Boiler (EU 006)	1.51E-03 lb/10^3 gal No. 6 Fuel Oil	13	1,311 10^3 gal/yr	15	9.90E-04
	1.20E-05 lb/ton BLS	14	399,496 ton BLS/yr	16	2.40E-03
				Total:	**3.39E-03**
Mercury - Hg					
No. 2 Recovery Boiler (EU 006)	1.13E-04 lb/10^3 gal No. 6 Fuel Oil	13	1,311 10^3 gal/yr	15	7.41E-05
	1.80E-07 lb/ton BLS	14	399,496 ton BLS/yr	16	3.60E-05
				Total:	**1.10E-04**
Fluorides - F					
No. 2 Recovery Boiler (EU 006)	0.0373 lb/10^3 gal No. 6 Fuel Oil	13	1,311 10^3 gal/yr	15	0.024
				Total:	**0.024**

Notes:
BLS = black liquor solids
ADUP = air-dried unbleached pulp

Footnotes:
[a] Based on the highest emissions from either burning 100% natural gas, or burning 549,900 MMBtu/yr of No. 6 fuel oil and the rest natural gas.
[b] TRS emissions not accounted for in the PSD Applicability table (Table 3-3) since this project will not affect TRS burning.
[c] Assumed all sulfur in the natural gas is converted to SO_2.

References:
1. AP-42, Table 1.3-1, normal firing. Fuel oil sulfur content set at 1.9%, based on the maximum sulfur content since 2000 (see Appendix A).
2. NCASI Technical Bulletin No. 884, Table 4.12, Emissions from NDCE Kraft Recovery Furnaces, median values.
3. NCASI technical Bulletin No. 858, Table 9C. Factor based on total TRS emissions (in lb S/ton ADUP) from Kraft Pulp Mill Evaporators (median value), a 50% increase in evaporator emissions from the black liquor concentrator and 100% conversion to SO_2.
4. Based on proposed limits of 80 ppmvd @ 8% O_2 for NO_X, 400 ppmvd @ 8% O_2 as a 24-hour average for CO, and 0.030 gr/dscf @ 8% O_2 for PM.
5. AP-42, Table 1.3-1, assuming 99.5% removal in ESP and sulfur content set at 1.9%, based on the maximum sulfur content since 2000 (see Appendix A).
6. AP-42, Table 1.3-5.
7. AP-42, Table 1.3-3. Factor represents non-methane TOC emissions from industrial boilers.
8. NCASI Technical Bulletin No. 884, Table 4.2, VOC Content of Uncontrolled Non-Condensible Gases, Pulping & Evaporator NCGs, assuming 50% of total emissions from the new BL concentrator, and 99% destruction in the No. 1 Bark Boiler or No. 1 Power Boiler.
9. NCASI Technical Bulletin No. 858, Table 10B, median values for total hydrocarbons and total TRS.
10. Based on proposed TRS limit for the No. 2 Recovery Boiler.
11. NCASI Technical Bulletin No. 858, Table 9C, based on the sum of the median value of each TRS species (0.163 lb/ton ADUP), and assuming 50% of total factor due to new BL concentrator, and 99% destruction in the No. 1 Bark Boiler or No. 1 Power Boiler.
12. Based on similar derivation of sulfuric acid mist from AP-42, Table 1.3-1, for fuel oil: 3.6% of SO_2 becomes SO_3 then take into account the ratio of sulfuric acid mist and sulfur trioxide molecular weights (98/80).
13. AP-42, Table 1.3-11.
14. NCASI Technical Bulletin No. 858, Table 14B, using median NDCE values for ND = 0.
15. Based on the highest consecutive 2-year average fuel oil usage from 1997-2006.
16. Based on the highest consecutive 2-year average ADUP/BLS usage from 1997-2006. 1 ton ADUP = 1.5 tons BLS.
17. Based on maximum ADUP throughput through the Multi-Effect Evaporator System. 1 ton ADUP = 1.5 tons BLS.
18. Assuming continuous (8,760 hr/yr) use.
19. Based on the most recent stack test.

TABLE 2-3
PROJECTED ACTUAL EMISSIONS
PHASE II, BUCKEYE ENERGY PROJECT, BUCKEYE FLORIDA

Pollutant	Emission Factor	Ref.	Activity Factor	Ref.	Annual Emissions (TPY)	Total Annual Emissions (TPY)
Sulfur Dioxide - SO_2						
No. 2 Recovery Boiler (EU 006)	298.3 lb/10^3 gal No. 6 Fuel Oil	1	1,311 10^3 gal/yr	23	195.59	343.41
	0.74 lb/ton BLS	2	399,496 ton BLS/yr	24	147.81	
BL Concentrator for No. 2 Recovery Boiler	0.056 lb/ton BLS	3	535,919 ton BLS/yr	25	15.01	15.01
No. 3 Recovery Boiler (EU 007)	298.3 lb/10^3 gal No. 6 Fuel Oil	1	1,670 10^3 gal/yr	23	249.03	369.76
	0.74 lb/ton BLS	2	326,315 ton BLS/yr	24	120.74	
BL Concentrator for No. 3 Recovery Boiler	0.056 lb/ton BLS	3	557,793 ton BLS/yr	25	15.62	15.62
No. 1 Power Boiler (EU 002) [a,b]	298.3 lb/10^3 gal No. 6 Fuel Oil	1	5,623 10^3 gal/yr	26	838.67	839.08
	0.6 lb/10^6 ft^3 Natural Gas	4	1,360 10^6 ft^3/yr	26	0.41	
No. 2 Power Boiler (EU 003)	0.6 lb/10^6 ft^3 Natural Gas	4	2,181 10^6 ft^3/yr	27	0.65	0.65
No. 1 Bark Boiler (EU 004) [b]	298.3 lb/10^3 gal No. 6 Fuel Oil	1	875 10^3 gal/yr	28	130.44	145.55
	0.27 lb/ton dry wood	5	111,941 tons dry wood/yr	28	15.11	
No. 2 Bark Boiler (EU 019)	298.3 lb/10^3 gal No. 6 Fuel Oil	1	1,005 10^3 gal/yr	29	149.83	183.94
	0.27 lb/ton dry wood	5	252,600 tons dry wood/yr	29	34.10	
					Total:	**1,913.01**
Nitrogen Oxides - NO_x						
No. 2 Recovery Boiler (EU 006)	47 lb/10^3 gal No. 6 Fuel Oil	1	1,311 10^3 gal/yr	23	30.82	318.81
	1.44 lb/ton BLS	6	399,496 ton BLS/yr	24	287.99	
No. 3 Recovery Boiler (EU 007)	47 lb/10^3 gal No. 6 Fuel Oil	1	1,670 10^3 gal/yr	23	39.24	309.98
	1.66 lb/ton BLS	6	326,315 ton BLS/yr	24	270.75	
No. 1 Power Boiler (EU 002) [a,b]	47 lb/10^3 gal No. 6 Fuel Oil	1	5,623 10^3 gal/yr	26	132.14	322.58
	280 lb/10^6 ft^3 Natural Gas	7	1,360 10^6 ft^3/yr	26	190.44	
No. 2 Power Boiler (EU 003)	280 lb/10^6 ft^3 Natural Gas	7	2,181 10^6 ft^3/yr	27	305.37	305.37
No. 1 Bark Boiler (EU 004) [b]	47 lb/10^3 gal No. 6 Fuel Oil	1	875 10^3 gal/yr	28	20.55	242.20
	3.96 lb/ton dry wood	5	111,941 tons dry wood/yr	28	221.64	
No. 2 Bark Boiler (EU 019)	47 lb/10^3 gal No. 6 Fuel Oil	1	1,005 10^3 gal/yr	29	23.61	523.76
	3.96 lb/ton dry wood	5	252,600 tons dry wood/yr	29	500.15	
					Total:	**2,022.70**
Carbon Monoxide - CO						
No. 2 Recovery Boiler (EU 006)	5 lb/10^3 gal No. 6 Fuel Oil	1	1,311 10^3 gal/yr	23	3.28	879.78
	4.39 lb/ton BLS	6	399,496 ton BLS/yr	24	876.50	
No. 3 Recovery Boiler (EU 007)	5 lb/10^3 gal No. 6 Fuel Oil	1	1,670 10^3 gal/yr	23	4.17	828.18
	5.05 lb/ton BLS	6	326,315 ton BLS/yr	24	824.01	
No. 1 Power Boiler (EU 002) [a,b]	5 lb/10^3 gal No. 6 Fuel Oil	1	-- 10^3 gal/yr	26	--	91.61
	84 lb/10^6 ft^3 Natural Gas	7	2,181 10^6 ft^3/yr	27	91.61	
No. 2 Power Boiler (EU 003)	84 lb/10^6 ft^3 Natural Gas	7	2,181 10^6 ft^3/yr	27	91.61	91.61
No. 1 Bark Boiler (EU 004) [b]	5 lb/10^3 gal No. 6 Fuel Oil	1	-- 10^3 gal/yr	28	--	647.57
	10.8 lb/ton dry wood	5	119,921 tons dry wood/yr	28	647.57	
No. 2 Bark Boiler (EU 019)	5 lb/10^3 gal No. 6 Fuel Oil	1	-- 10^3 gal/yr	29	--	1,413.54
	10.8 lb/ton dry wood	5	261,767 tons dry wood/yr	29	1,413.54	
					Total:	**3,952.30**
Particulate Matter Total - PM						
No. 2 Recovery Boiler (EU 006)	0.10 lb/10^3 gal No. 6 Fuel Oil	8	1,311 10^3 gal/yr	23	0.07	129.37
	0.65 lb/ton BLS	6	399,496 ton BLS/yr	24	129.30	
No. 3 Recovery Boiler (EU 007)	0.10 lb/10^3 gal No. 6 Fuel Oil	8	1,670 10^3 gal/yr	23	0.09	121.65
	0.75 lb/ton BLS	6	326,315 ton BLS/yr	24	121.56	
No. 1 Power Boiler (EU 002) [a,b]	20.7 lb/10^3 gal No. 6 Fuel Oil	1	5,623 10^3 gal/yr	26	58.14	63.31
	7.6 lb/10^6 ft^3 Natural Gas	4	1,360 10^6 ft^3/yr	27	5.17	
No. 2 Power Boiler (EU 003)	7.6 lb/10^6 ft^3 Natural Gas	4	2,181 10^6 ft^3/yr	27	8.29	8.29
No. 1 Bark Boiler (EU 004) [b]	13 % Increase from Baseline	9	129.94 TPY from Baseline	9	146.83	146.83
No. 2 Bark Boiler (EU 019)	13 % Increase from Baseline	9	345.96 TPY from Baseline	9	390.93	390.93
					Total:	**860.38**
Particulate Matter - PM_{10}						
No. 2 Recovery Boiler (EU 006)	63 % of PM from No. 6 Fuel Oil	10	-- --	--	0.04	92.24
	71.3 % of PM from BLS	2	-- --	--	92.19	
No. 3 Recovery Boiler (EU 007)	63 % of PM from Fuel Oil	10	-- --	--	0.05	86.73
	71.3 % of PM from BLS	2	-- --	--	86.67	
No. 1 Power Boiler (EU 002) [a,b]	86 % of PM from No. 6 Fuel Oil	10	-- --	--	50.00	55.17
	100 % of PM from Natural Gas	11	-- --	--	5.17	
No. 2 Power Boiler (EU 003)	100 % of PM from Natural Gas	11	-- --	--	8.29	8.29
No. 1 Bark Boiler (EU 004) [b]	98 % of PM from wood	12	-- --	--	143.89	143.89
No. 2 Bark Boiler (EU 019)	98 % of PM from wood	12	-- --	--	383.11	383.11
					Total:	**769.43**
Particulate Matter - $PM_{2.5}$						
No. 2 Recovery Boiler (EU 006)	41 % of PM from No. 6 Fuel Oil	10	-- --	--	0.03	64.42
	49.8 % of PM from BLS	2	-- --	--	64.39	
No. 3 Recovery Boiler (EU 007)	41 % of PM from Fuel Oil	10	-- --	--	0.04	60.57
	49.8 % of PM from BLS	2	-- --	--	60.54	
No. 1 Power Boiler (EU 002) [a,b]	56 % of PM from No. 6 Fuel Oil	10	-- --	--	32.56	37.73
	100 % of PM from Natural Gas	11	-- --	--	5.17	
No. 2 Power Boiler (EU 003)	100 % of PM from Natural Gas	11	-- --	--	8.29	8.29
No. 1 Bark Boiler (EU 004) [b]	98 % of PM from wood	12	-- --	--	143.89	143.89
No. 2 Bark Boiler (EU 019)	98 % of PM from wood	12	-- --	--	383.11	383.11
					Total:	**698.02**
Volatile Organic Compounds - VOC						
No. 2 Recovery Boiler (EU 006)	0.28 lb/10^3 gal No. 6 Fuel Oil	13	1,311 10^3 gal/yr	23	0.18	18.16
	0.09 lb/ton BLS	2	399,496 ton BLS/yr	24	17.98	
BL Concentrator for No. 2 Recovery Boiler	0.0024 lb/ton BLS	14	535,919 ton BLS/yr	25	0.63	0.63
No. 3 Recovery Boiler (EU 007)	0.28 lb/10^3 gal No. 6 Fuel Oil	13	1,670 10^3 gal/yr	23	0.23	14.92
	0.09 lb/ton BLS	2	326,315 ton BLS/yr	24	14.68	
BL Concentrator for No. 3 Recovery Boiler	0.0024 lb/ton BLS	14	557,793 ton BLS/yr	25	0.66	0.66
No. 1 Power Boiler (EU 002) [a,b]	0.28 lb/10^3 gal No. 6 Fuel Oil	13	-- 10^3 gal/yr	26	--	6.00
	5.5 lb/10^6 ft^3 Natural Gas	4	2,181 10^6 ft^3/yr	27	6.00	
No. 2 Power Boiler (EU 003)	5.5 lb/10^6 ft^3 Natural Gas	4	2,181 10^6 ft^3/yr	27	6.00	6.00
No. 1 Bark Boiler (EU 004) [b]	0.28 lb/10^3 gal No. 6 Fuel Oil	13	-- 10^3 gal/yr	28	--	36.70
	0.612 lb/ton dry wood	5	119,921 tons dry wood/yr	28	36.70	
No. 2 Bark Boiler (EU 019)	0.28 lb/10^3 gal No. 6 Fuel Oil	13	-- 10^3 gal/yr	29	--	80.10
	0.612 lb/ton dry wood	5	261,767 tons dry wood/yr	29	80.10	
BL Storage Tank	0.11 lb/hr	15	8,760 hr/yr	30	0.48	0.48
					Total:	**163.65**
Total Reduced Sulfur - TRS						
No. 2 Recovery Boiler (EU 006)	5 ppmvd @ 8% O_2	16	122,849 dscfm @ 8% O_2	31	14.24	14.24
BL Concentrator for No. 2 Recovery Boiler	0.00054 lb/ton BLS	17	535,919 ton BLS/yr	25	0.15	0.15
No. 3 Recovery Boiler (EU 007)	5 ppmvd @ 8% O_2	16	119,300 dscfm @ 8% O_2	31	13.82	13.82
BL Concentrator for No. 3 Recovery Boiler	0.00054 lb/ton BLS	17	557,793 ton BLS/yr	25	0.15	0.15
BL Storage Tank	0.18 lb/hr	15	8,760 hr/yr	30	0.79	0.79
					Total:	**29.15**
Sulfuric Acid Mist - SAM						
No. 2 Recovery Boiler (EU 006)	4.4 % of SO_2 from No. 6 Fuel Oil	18	1,311 10^3 gal/yr	23	8.70	15.27
	4.4 % of SO_2 from BLS	18	399,496 ton BLS/yr	24	6.57	
BL Concentrator for No. 2 Recovery Boiler	4.4 % of SO_2 from BLS	18	535,919 ton BLS/yr	25	0.67	0.67

TABLE 2-3
PROJECTED ACTUAL EMISSIONS
PHASE II, BUCKEYE ENERGY PROJECT, BUCKEYE FLORIDA

Pollutant	Emission Factor	Ref.	Activity Factor	Ref.	Annual Emissions (TPY)	Total Annual Emissions (TPY)
No. 3 Recovery Boiler (EU 007)	4.4 % of SO_2 from No. 6 Fuel Oil	18	1,670 10^3 gal/yr	23	11.08	16.44
	4.4 % of SO_2 from BLS	18	326,315 ton BLS/yr	24	5.37	
BL Concentrator for No. 3 Recovery Boiler	4.4 % of SO_2 from BLS	18	557,793 ton BLS/yr	25	0.69	0.69
No. 1 Power Boiler (EU 002) [c]	4.4 % of SO_2 from No. 6 Fuel Oil	18	5,623 10^3 gal/yr	26	37.30	37.30
No. 2 Power Boiler (EU 003) [c]	--	--	--	--	--	--
No. 1 Bark Boiler (EU 004) [b]	4.4 % of SO_2 from No. 6 Fuel Oil	18	875 10^3 gal/yr	28	5.80	6.47
	4.4 % of SO_2 from wood	18	111,941 tons dry wood/yr	28	0.67	
No. 2 Bark Boiler (EU 019)	4.4 % of SO_2 from No. 6 Fuel Oil	18	1,005 10^3 gal/yr	29	6.66	8.18
	4.4 % of SO_2 from wood	18	252,600 tons dry wood/yr	29	1.52	
					Total:	**85.03**
<u>Lead - Pb</u>						
No. 2 Recovery Boiler (EU 006)	1.51E-03 lb/10^3 gal No. 6 Fuel Oil	19	1,311 10^3 gal/yr	23	9.90E-04	3.39E-03
	1.20E-05 lb/ton BLS	20	399,496 ton BLS/yr	24	2.40E-03	
No. 3 Recovery Boiler (EU 007)	1.51E-03 lb/10^3 gal No. 6 Fuel Oil	19	1,670 10^3 gal/yr	23	1.26E-03	3.22E-03
	1.20E-05 lb/ton BLS	20	326,315 ton BLS/yr	24	1.96E-03	
No. 1 Power Boiler (EU 002) [a,b]	1.51E-03 lb/10^3 gal No. 6 Fuel Oil	19	5,623 10^3 gal/yr	26	4.25E-03	4.59E-03
	5.00E-04 lb/10^6 ft^3 Natural Gas	4	1,360 10^6 ft^3/yr	27	3.40E-04	
No. 2 Power Boiler (EU 003)	5.00E-04 lb/10^6 ft^3 Natural Gas	4	2,181 10^6 ft^3/yr	27	5.45E-04	5.45E-04
No. 1 Bark Boiler (EU 004) [b]	1.51E-03 lb/10^3 gal No. 6 Fuel Oil	19	-- 10^3 gal/yr	28	--	4.32E-02
	7.20E-04 lb/ton dry wood	21	119,921 tons dry wood/yr	28	4.32E-02	
No. 2 Bark Boiler (EU 019)	1.51E-03 lb/10^3 gal No. 6 Fuel Oil	19	-- 10^3 gal/yr	29	--	9.42E-02
	7.20E-04 lb/ton dry wood	21	261,767 tons dry wood/yr	29	9.42E-02	
					Total:	**1.49E-01**
<u>Mercury - Hg</u>						
No. 2 Recovery Boiler (EU 006)	1.13E-04 lb/10^3 gal No. 6 Fuel Oil	19	1,311 10^3 gal/yr	23	7.41E-05	1.10E-04
	1.80E-07 lb/ton BLS	20	399,496 ton BLS/yr	24	3.60E-05	
No. 3 Recovery Boiler (EU 007)	1.13E-04 lb/10^3 gal No. 6 Fuel Oil	19	1,670 10^3 gal/yr	23	9.43E-05	1.24E-04
	1.80E-07 lb/ton BLS	20	326,315 ton BLS/yr	24	2.94E-05	
No. 1 Power Boiler (EU 002) [a,b]	1.13E-04 lb/10^3 gal No. 6 Fuel Oil	19	5,623 10^3 gal/yr	26	3.18E-04	4.95E-04
	2.60E-04 lb/10^6 ft^3 Natural Gas	22	1,360 10^6 ft^3/yr	27	1.77E-04	
No. 2 Power Boiler (EU 003)	2.60E-04 lb/10^6 ft^3 Natural Gas	22	2,181 10^6 ft^3/yr	27	2.84E-04	2.84E-04
No. 1 Bark Boiler (EU 004) [b]	1.13E-04 lb/10^3 gal No. 6 Fuel Oil	19	875 10^3 gal/yr	28	4.94E-05	7.34E-04
	1.22E-05 lb/ton dry wood	21	111,941 tons dry wood/yr	28	6.85E-04	
No. 2 Bark Boiler (EU 019)	1.13E-04 lb/10^3 gal No. 6 Fuel Oil	19	1,005 10^3 gal/yr	29	5.68E-05	1.60E-03
	1.22E-05 lb/ton dry wood	21	252,600 tons dry wood/yr	29	1.55E-03	
					Total:	**3.35E-03**
<u>Fluorides - F</u>						
No. 2 Recovery Boiler (EU 006)	0.0373 lb/10^3 gal No. 6 Fuel Oil	19	1,311 10^3 gal/yr	23	0.024	0.024
No. 3 Recovery Boiler (EU 007)	0.0373 lb/10^3 gal No. 6 Fuel Oil	19	1,670 10^3 gal/yr	23	0.031	0.031
No. 1 Power Boiler (EU 002) [a,b]	0.0373 lb/10^3 gal No. 6 Fuel Oil	19	5,623 10^3 gal/yr	26	0.105	0.105
No. 1 Bark Boiler (EU 004) [b]	0.0373 lb/10^3 gal No. 6 Fuel Oil	19	875 10^3 gal/yr	28	0.016	0.016
No. 2 Bark Boiler (EU 019)	0.0373 lb/10^3 gal No. 6 Fuel Oil	19	1,005 10^3 gal/yr	29	0.019	0.019
					Total:	0.196

<u>Notes:</u>
BLS = black liquor solids
ADUP = air-dried unbleached pulp

<u>Footnotes:</u>
[a] Based on the highest emissions from either burning 100% natural gas, or burning 549,900 MMBtu/yr of No. 6 fuel oil and the rest natural gas.
[b] TRS emissions not accounted for in the PSD Applicability table (Table 3-3) since this project will not affect TRS burning.
[c] Assumed all sulfur in the natural gas is converted to SO_2.

<u>References:</u>
1. AP-42, Table 1.3-1, normal firing. Fuel oil sulfur content set at 1.9%, based on the maximum sulfur content since 2000 (see Appendix A).
2. NCASI Technical Bulletin No. 884, Table 4.12, Emissions from NDCE Kraft Recovery Furnaces, median values.
3. NCASI technical Bulletin No. 858, Table 9C. Factor based on total TRS emissions (in lb S/ton ADUP) from Kraft Pulp Mill Evaporators (median value), a 50% increase in evaporator emissions from the black liquor concentrator and 100% conversion to SO_2.
4. Based on AP-42, Table 1.4-2.
5. NCASI Technical Bulletin No. 884, Table 9.6a, for wet wood firing. Emissions based on a stoker boiler and 18 MMBtu/ton dry wood. Assume 40% removal of SO_2 in scrubber.
6. Based on proposed limits of 80 ppmvd @ 8% O_2 for NO_X, 400 ppmvd @ 8% O_2 as a 24-hour average for CO, and 0.030 gr/dscf @ 8% O_2 for PM.
7. AP-42, Table 1.4-1, large wall-fired boiler (>100 MMBtu/hr) with uncontrolled emissions (Pre-NSPS).
8. AP-42, Table 1.3-1, assuming 99.5% removal in ESP and sulfur content set at 1.9%, based on the maximum sulfur content since 2000 (see Appendix A).
9. Based on a proposed 13% increase in operation of the Bark Boilers from past operation.
10. Based on AP-42, Table 1.3-4. 63% of PM is PM_{10} and 41% of PM is $PM_{2.5}$ for ESP control; Table 1.3-5, 86% of PM is PM_{10} and 56% of PM is $PM_{2.5}$ for no controls.
11. Based on AP-42, Table 1.4-2. 100% of PM is PM_{10} or $PM_{2.5}$.
12. NCASI Technical Bulletin No. 884, Table 9.6b. 98% of PM is PM_{10} for wet scrubber control.
13. AP-42, Table 1.3-3. Factor represents non-methane TOC emissions from industrial boilers.
14. NCASI Technical Bulletin No. 884, Table 4.2, VOC Content of Uncontrolled Non-Condensible Gases, Pulping & Evaporator NCGs, assuming 50% of total emissions from the new BL concentrator, and 99% destruction in the No. 1 Bark Boiler or No. 1 Power Boiler.
15. NCASI Technical Bulletin No. 858, Table 10B, median values for total hydrocarbons and total TRS.
16. Based on proposed TRS limits for the Nos. 2 & 3 Recovery Boilers.
17. NCASI Technical Bulletin No. 858, Table 9C, based on the sum of the median value of each TRS species (0.163 lb/ton ADUP), and assuming 50% of total factor due to new BL concentrator, and 99% destruction in the No. 1 Bark Boiler or No. 1 Power Boiler.
18. Based on similar derivation of sulfuric acid mist from AP-42, Table 1.3-1, for fuel oil: 3.6% of SO_2 becomes SO_3 then take into account the ratio of sulfuric acid mist and sulfur trioxide molecular weights (98/80).
19. Based on AP-42, Table 1.3-11.
20. NCASI Technical Bulletin No. 858, Table 14B, using median NDCE values for ND = 0.
21. NCASI Technical Bulletin No. 858, Table 20B, wood-fired boilers with wet scrubbers and 18 MMBtu/ton dry wood.
22. Based on AP-42, Tabe 1.4-4.
23. Based on the highest consecutive 2-year average fuel oil usage from 1997-2006.
24. Based on the highest consecutive 2-year average black liquor usage from 1997-2006. 1 ton ADUP = 1.5 tons BLS.
25. Based on maximum ADUP throughput through the Multi-Effect Evaporator System. 1 ton ADUP = 1.5 tons BLS.
26. Based on the maximum permitted heat input (249 MMBtu/hr) and 1,000 MMBtu/Mscf for natural gas (Permit No. 1230001-016-AV). Fuel usage based on operating the remainder of the year firing natural gas (1,632,000 MMBtu/yr), when not firing No. 6 fuel oil.
27. Based on the maximum permitted heat input (249 MMBtu/hr) and 1,000 MMBtu/Mscf for natural gas (Permit No. 1230001-016-AV). Fuel usage based on continuous (8,760 hr/yr) operation.
28. Based on a 13% increase in the maximum annual heat input from 1997-2006 (Appendix A, Table A-28). Emissions based on either 100% wood/bark firing, or 6.7% fuel oil and 93.3% wood/bark firing for the worst case fuel for each pollutant (fuel oil is 146,000 Btu/gal and wood/bark is 16 MMBtu/ton dry wood). Buckeye has fired a maximum of 6.7% fuel oil and 93.3% wood/bark on an annual heat input basis in the last ten years (1997-2006).
29. Based on a 13% increase in the maximum annual heat input from 1997-2006 (Appendix A, Table A-28). Emissions based on either 100% wood/bark firing or 3.5% fuel oil and 96.5% wood/bark firing for the worst case fuel for each pollutant (fuel oil is 146,000 Btu/gal and wood/bark is 16 MMBtu/ton dry wood). Buckeye has fired a maximum of 3.5% fuel oil and 96.5% wood/bark on an annual heat input basis in the last ten years (1997-2006).
30. Assuming continuous (8,760 hr/yr) use.
31. Based on the most recent stack test.

TABLE 2-4
FUTURE POTENTIAL EMISSIONS
BUCKEYE ENERGY PROJECT, BUCKEYE FLORIDA

Pollutant	Emission Factor	Ref.	Hourly Activity Factor [a]	Maximum Hourly Emissions (lb/hr)	Annual Activity Factor	Ref.	Individual Fuel - Max Annual Emissions (TPY)	All Fuels- Max Annual Emissions (TPY)
Sulfur Dioxide - SO_2								
No. 2 Recovery Boiler (EU 006)	392.5 lb/10^3 gal No. 6 Fuel Oil	1	2.192 10^3 gal/hr	860.27	1,700 10^3 gal/yr	21	333.63	484.14
	0.74 lb/ton BLS	2	48.80 ton BLS/hr	36.11	427,488 ton BLS/yr	22	158.17	
No. 3 Recovery Boiler (EU 007)	392.5 lb/10^3 gal No. 6 Fuel Oil	1	0.548 10^3 gal/hr	215.07	2,000 10^3 gal/yr	21	392.50	516.95
	0.74 lb/ton BLS	2	41.18 ton BLS/hr	30.47	360,693 ton BLS/yr	22	133.46	
No. 1 Power Boiler (EU 002) [b,c]	392.5 lb/10^3 gal No. 6 Fuel Oil	1	1.705 10^3 gal/hr	669.40	5,623 10^3 gal/yr	23	1,103.51	1,103.92
	0.6 lb/10^6 ft^3 Natural Gas	4	0.249 10^6 ft^3/hr	0.15	2,181 10^6 ft^3/yr	24	0.65	
No. 2 Power Boiler (EU 003)	0.6 lb/10^6 ft^3 Natural Gas	4	0.249 10^6 ft^3/hr	0.15	2,181 10^6 ft^3/yr	24	0.65	0.65
No. 1 Bark Boiler (EU 004) [c]	392.5 lb/10^3 gal No. 6 Fuel Oil	1	1.644 10^3 gal/hr	645.27	14,401 10^3 gal/yr	22	2,826.28	2,826.28
	0.24 lb/ton dry wood	5	18.75 tons dry wood/hr	4.50	164,250 tons dry wood/yr	22	19.71	
No. 2 Bark Boiler (EU 019)	392.5 lb/10^3 gal No. 6 Fuel Oil	1	1.233 10^3 gal/hr	483.90	10,800 10^3 gal/yr	22	2,119.50	2,119.50
	0.24 lb/ton dry wood	5	37.56 tons dry wood/hr	9.02	329,048 tons dry wood/yr	22	39.49	
Nitrogen Oxides - NO_x								
No. 2 Recovery Boiler (EU 006)	47 lb/10^3 gal No. 6 Fuel Oil	1	2.192 10^3 gal/hr	103.01	1,700 10^3 gal/yr	21	39.95	333.21
	80 ppmvd @ 8% O_2		122,849 dscfm @ 8% O_2	70.36	8,760 hr/yr	22	308.17	
No. 3 Recovery Boiler (EU 007)	47 lb/10^3 gal No. 6 Fuel Oil	1	0.548 10^3 gal/hr	25.75	2,000 10^3 gal/yr	21	47.00	326.08
	80 ppmvd @ 8% O_2		119,300 dscfm @ 8% O_2	68.33	8,760 hr/yr	22	299.27	
No. 1 Power Boiler (EU 002) [b,c]	47 lb/10^3 gal No. 6 Fuel Oil	1	1.705 10^3 gal/hr	80.16	5,623 10^3 gal/yr	23	132.14	322.58
	280 lb/10^6 ft^3 Natural Gas	6	0.249 10^6 ft^3/hr	69.72	2,181 10^6 ft^3/yr	24	305.37	
No. 2 Power Boiler (EU 003)	280 lb/10^6 ft^3 Natural Gas	6	0.249 10^6 ft^3/hr	69.72	2,181 10^6 ft^3/yr	24	305.37	305.37
No. 1 Bark Boiler (EU 004) [c]	47 lb/10^3 gal No. 6 Fuel Oil	1	1.644 10^3 gal/hr	77.26	14,400 10^3 gal/yr	22	338.40	338.40
	3.52 lb/ton dry wood	5	18.75 tons dry wood/hr	66.00	164,250 tons dry wood/yr	22	289.08	
No. 2 Bark Boiler (EU 019)	47 lb/10^3 gal No. 6 Fuel Oil	1	1.233 10^3 gal/hr	57.95	10,800 10^3 gal/yr	22	253.80	579.12
	3.52 lb/ton dry wood	5	37.56 tons dry wood/hr	132.22	329,048 tons dry wood/yr	22	579.12	
Carbon Monoxide - CO								
No. 2 Recovery Boiler (EU 006)	5 lb/10^3 gal No. 6 Fuel Oil	1	2.192 10^3 gal/hr	10.96	1,700 10^3 gal/yr	21	4.25	937.92
1-hr:	800 ppmvd @ 8% O_2		122,849 dscfm @ 8% O_2	428.27			--	
24-hr:	400 ppmvd @ 8% O_2		122,849 dscfm @ 8% O_2	214.14	8,760 hr/yr		937.92	
No. 3 Recovery Boiler (EU 007)	5 lb/10^3 gal No. 6 Fuel Oil	1	0.548 10^3 gal/hr	2.74	2,000 10^3 gal/yr	21	5.00	910.82
1-hr:	800 ppmvd @ 8% O_2		119,300 dscfm @ 8% O_2	415.90			--	
24-hr:	400 ppmvd @ 8% O_2		119,300 dscfm @ 8% O_2	207.95	8,760 hr/yr		910.82	
No. 1 Power Boiler (EU 002) [b,c]	5 lb/10^3 gal No. 6 Fuel Oil	1	1.705 10^3 gal/hr	8.53	5,623 10^3 gal/yr	23	14.06	91.61
	84 lb/10^6 ft^3 Natural Gas	6	0.249 10^6 ft^3/hr	20.92	2,181 10^6 ft^3/yr	24	91.61	
No. 2 Power Boiler (EU 003)	84 lb/10^6 ft^3 Natural Gas	6	0.249 10^6 ft^3/hr	20.92	2,181 10^6 ft^3/yr	24	91.61	91.61
No. 1 Bark Boiler (EU 004) [c]	5 lb/10^3 gal No. 6 Fuel Oil	1	1.644 10^3 gal/hr	8.22	14,400 10^3 gal/yr	22	36.00	788.40
	9.6 lb/ton dry wood	5	18.75 tons dry wood/hr	180.00	164,250 tons dry wood/yr	22	788.40	
No. 2 Bark Boiler (EU 019)	5 lb/10^3 gal No. 6 Fuel Oil	1	1.233 10^3 gal/hr	6.16	10,800 10^3 gal/yr	22	27.00	1,579.43
	9.6 lb/ton dry wood	5	37.56 tons dry wood/hr	360.60	329,048 tons dry wood/yr	22	1,579.43	
Particulate Matter Total - PM								
No. 2 Recovery Boiler (EU 006)	0.13 lb/10^3 gal No. 6 Fuel Oil	7	2.192 10^3 gal/hr	0.29	1,700 10^3 gal/yr	21	0.11	138.36
	0.030 gr/dscf @ 8% O_2 from BLS	9	122,849 dscfm @ 8% O_2	31.59	8,760 hr/yr	22	138.36	
No. 3 Recovery Boiler (EU 007)	0.13 lb/10^3 gal No. 6 Fuel Oil	7	0.548 10^3 gal/hr	0.07	2,000 10^3 gal/yr	21	0.13	134.37
	0.030 gr/dscf @ 8% O_2 from BLS	9	119,300 dscfm @ 8% O_2	30.68	8,760 hr/yr	22	134.37	
No. 1 Power Boiler (EU 002) [b,c]	26.2 lb/10^3 gal No. 6 Fuel Oil	1	1.705 10^3 gal/hr	44.68	5,623 10^3 gal/yr	23	73.65	78.82
	7.6 lb/10^6 ft^3 Natural Gas	4	0.249 10^6 ft^3/hr	1.89	2,181 10^6 ft^3/yr	24	8.29	
No. 2 Power Boiler (EU 003)	7.6 lb/10^6 ft^3 Natural Gas	4	0.249 10^6 ft^3/hr	1.89	2,181 10^6 ft^3/yr	24	8.29	8.29
No. 1 Bark Boiler (EU 004) [c]	0.10 lb/MMBtu from No. 6 Fuel Oil	8	240 MMBtu/hr	24.00	2,102,400 MMBtu/yr	22	105.12	207.61
	0.158 lb/MMBtu from wood	8	300 MMBtu/hr	47.40	2,628,000 MMBtu/yr	22	207.61	
No. 2 Bark Boiler (EU 019)	0.10 lb/MMBtu from No. 6 Fuel Oil	8	180 MMBtu/hr	18.00	1,576,800 MMBtu/yr	22	78.84	468.56
	0.178 lb/MMBtu from wood	8	601 MMBtu/hr	106.98	5,264,760 MMBtu/yr	22	468.56	
Particulate Matter - PM_{10}								
No. 2 Recovery Boiler (EU 006)	63 % of PM from No. 6 Fuel Oil	10	-- --	0.18	-- --	--	0.07	98.65
	71.3 % of PM from BLS	2	-- --	22.52	-- --	--	98.65	
No. 3 Recovery Boiler (EU 007)	63 % of PM from Fuel Oil	10	-- --	0.05	-- --	--	0.08	95.80
	71.3 % of PM from BLS	2	-- --	21.87	-- --	--	95.80	
No. 1 Power Boiler (EU 002) [b,c]	86 % of PM from No. 6 Fuel Oil	10	-- --	38.42	-- --	--	63.34	68.51
	100 % of PM from Natural Gas	11	-- --	1.89	-- --	--	8.29	
No. 2 Power Boiler (EU 003)	100 % of PM from Natural Gas	11	-- --	1.89	-- --	--	8.29	8.29
No. 1 Bark Boiler (EU 004) [c]	63 % of PM from No. 6 Fuel Oil	10	-- --	15.12	-- --	--	66.23	203.46
	98 % of PM from wood	12	-- --	46.45	-- --	--	203.46	
No. 2 Bark Boiler (EU 019)	63 % of PM from No. 6 Fuel Oil	10	-- --	11.34	-- --	--	49.67	459.19
	98 % of PM from wood	12	-- --	104.84	-- --	--	459.19	
Particulate Matter - $PM_{2.5}$								
No. 2 Recovery Boiler (EU 006)	41 % of PM from No. 6 Fuel Oil	10	-- --	0.12	-- --	--	0.05	68.90
	49.8 % of PM from BLS	2	-- --	15.73	-- --	--	68.90	
No. 3 Recovery Boiler (EU 007)	41 % of PM from Fuel Oil	10	-- --	0.03	-- --	--	0.05	66.91
	49.8 % of PM from BLS	2	-- --	15.28	-- --	--	66.91	
No. 1 Power Boiler (EU 002) [b,c]	56 % of PM from No. 6 Fuel Oil	10	-- --	25.02	-- --	--	41.24	46.41
	100 % of PM from Natural Gas	11	-- --	1.89	-- --	--	8.29	
No. 2 Power Boiler (EU 003)	100 % of PM from Natural Gas	11	-- --	1.89	-- --	--	8.29	8.29
No. 1 Bark Boiler (EU 004) [c]	56 % of PM from No. 6 Fuel Oil	10	-- --	13.44	-- --	--	58.87	203.46
	98 % of PM from wood	12	-- --	46.45	-- --	--	203.46	
No. 2 Bark Boiler (EU 019)	56 % of PM from No. 6 Fuel Oil	10	-- --	10.08	-- --	--	44.15	459.19
	98 % of PM from wood	12	-- --	104.84	-- --	--	459.19	
Volatile Organic Compounds - VOC								
No. 2 Recovery Boiler (EU 006)	0.28 lb/10^3 gal No. 6 Fuel Oil	13	2.192 10^3 gal/hr	0.61	1,700 10^3 gal/yr	21	0.24	19.24
	0.09 lb/ton BLS	2	48.80 ton BLS/hr	4.39	427,488 ton BLS/yr	22	19.24	
No. 3 Recovery Boiler (EU 007)	0.28 lb/10^3 gal No. 6 Fuel Oil	13	0.548 10^3 gal/hr	0.15	2,000 10^3 gal/yr	21	0.28	16.23
	0.09 lb/ton BLS	2	41.18 ton BLS/hr	3.71	360,693 ton BLS/yr	22	16.23	
No. 1 Power Boiler (EU 002) [b,c]	0.28 lb/10^3 gal No. 6 Fuel Oil	13	1.705 10^3 gal/hr	0.48	5,623 10^3 gal/yr	23	0.79	6.00
	5.5 lb/10^6 ft^3 Natural Gas	4	0.249 10^6 ft^3/hr	1.37	2,181 10^6 ft^3/yr	24	6.00	
No. 2 Power Boiler (EU 003)	5.5 lb/10^6 ft^3 Natural Gas	4	0.249 10^6 ft^3/hr	1.37	2,181 10^6 ft^3/yr	24	6.00	6.00
No. 1 Bark Boiler (EU 004) [c]	0.28 lb/10^3 gal No. 6 Fuel Oil	13	1.644 10^3 gal/hr	0.46	14,400 10^3 gal/yr	22	2.02	44.68
	0.544 lb/ton dry wood	5	18.75 tons dry wood/hr	10.20	164,250 tons dry wood/yr	22	44.68	
No. 2 Bark Boiler (EU 019)	0.28 lb/10^3 gal No. 6 Fuel Oil	13	1.233 10^3 gal/hr	0.35	10,800 10^3 gal/yr	22	1.51	89.50
	0.544 lb/ton dry wood	5	37.56 tons dry wood/hr	20.43	329,048 tons dry wood/yr	22	89.50	
Total Reduced Sulfur - TRS								
No. 2 Recovery Boiler (EU 006)	5 ppmvd @ 8% O_2	8	122,849 dscfm @ 8% O_2	3.25	8,760 hr/yr	22	14.24	14.24
No. 3 Recovery Boiler (EU 007)	5 ppmvd @ 8% O_2	8	119,300 dscfm @ 8% O_2	3.16	8,760 hr/yr	22	13.82	13.82
No. 1 Power Boiler (EU 002) [b,c]	5 ppmvd @ 10% O_2	8	86,345 dscfm @ 10% O_2	2.28	960 hr/yr	8	1.10	1.10
No. 1 Bark Boiler (EU 004) [c]	5 ppmvd @ 10% O_2	8	91,941 dscfm @ 10% O_2	2.43	8,760 hr/yr	22	10.65	10.65
Sulfuric Acid Mist - SAM								
No. 2 Recovery Boiler (EU 006)	4.4 % of SO_2 from No. 6 Fuel Oil	16	-- --	38.26	-- --	--	14.84	21.53
	4.4 % of SO_2 from BLS	16	-- --	1.61	-- --	--	7.03	
No. 3 Recovery Boiler (EU 007)	4.4 % of SO_2 from No. 6 Fuel Oil	16	-- --	9.57	-- --	--	17.46	22.99
	4.4 % of SO_2 from BLS	16	-- --	1.36	-- --	--	5.94	
No. 1 Power Boiler (EU 002) [d]	4.4 % of SO_2 from No. 6 Fuel Oil	16	-- --	29.77	-- --	--	49.08	49.10
	4.4 % of SO_2 from Natural Gas	16	-- --	0.01	-- --	--	0.03	
No. 2 Power Boiler (EU 003) [d]	4.4 % of SO_2 from Natural Gas	16	-- --	0.01	-- --	--	0.03	0.03
No. 1 Bark Boiler (EU 004) [c]	4.4 % of SO_2 from No. 6 Fuel Oil	16	-- --	28.70	-- --	--	125.70	125.70
	4.4 % of SO_2 from Wood	16	-- --	0.20	-- --	--	0.88	
No. 2 Bark Boiler (EU 019)	4.4 % of SO_2 from No. 6 Fuel Oil	16	-- --	21.52	-- --	--	94.26	94.26
	4.4 % of SO_2 from Wood	16	-- --	0.40	-- --	--	1.76	

TABLE 2-4
FUTURE POTENTIAL EMISSIONS
BUCKEYE ENERGY PROJECT, BUCKEYE FLORIDA

Pollutant	Emission Factor	Ref.	Hourly Activity Factor [a]	Maximum Hourly Emissions (lb/hr)	Annual Activity Factor	Ref.	Individual Fuel - Max Annual Emissions (TPY)	All Fuels- Max Annual Emissions (TPY)
Lead - Pb								
No. 2 Recovery Boiler (EU 006)	1.51E-03 lb/10^3 gal No. 6 Fuel Oil	17	2.192 10^3 gal/hr	0.0033	1,700 10^3 gal/yr	21	1.28E-03	3.72E-03
	1.20E-05 lb/ton BLS	18	48.80 ton BLS/hr	0.0006	427,488 ton BLS/yr	22	2.56E-03	
No. 3 Recovery Boiler (EU 007)	1.51E-03 lb/10^3 gal No. 6 Fuel Oil	17	0.548 10^3 gal/hr	0.0008	2,000 10^3 gal/yr	21	1.51E-03	3.53E-03
	1.20E-05 lb/ton BLS	18	41.18 ton BLS/hr	0.0005	360,693 ton BLS/yr	22	2.16E-03	
No. 1 Power Boiler (EU 002) [b,c]	1.51E-03 lb/10^3 gal No. 6 Fuel Oil	17	1.705 10^3 gal/hr	0.0026	5,623 10^3 gal/yr	23	4.25E-03	4.59E-03
	5.00E-04 lb/10^6 ft^3 Natural Gas	4	0.249 10^6 ft^3/hr	0.0001	2,181 10^6 ft^3/yr	24	5.45E-04	
No. 2 Power Boiler (EU 003)	5.00E-04 lb/10^6 ft^3 Natural Gas	4	0.249 10^6 ft^3/hr	0.0001	2,181 10^6 ft^3/yr	24	5.45E-04	5.45E-04
No. 1 Bark Boiler (EU 004) [c]	1.51E-03 lb/10^3 gal No. 6 Fuel Oil	17	1.644 10^3 gal/hr	0.0025	14,400 10^3 gal/yr	22	1.09E-02	5.26E-02
	6.40E-04 lb/ton dry wood	19	18.75 tons dry wood/hr	0.0120	164,250 tons dry wood/yr	22	5.26E-02	
No. 2 Bark Boiler (EU 019)	1.51E-03 lb/10^3 gal No. 6 Fuel Oil	17	1.233 10^3 gal/hr	0.0019	10,800 10^3 gal/yr	22	8.15E-03	1.05E-01
	6.40E-04 lb/ton dry wood	19	37.56 tons dry wood/hr	0.0240	329,048 tons dry wood/yr	22	1.05E-01	
Mercury - Hg								
No. 2 Recovery Boiler (EU 006)	1.13E-04 lb/10^3 gal No. 6 Fuel Oil	17	2.192 10^3 gal/hr	2.48E-04	1,700 10^3 gal/yr	21	9.61E-05	1.33E-04
	1.80E-07 lb/ton BLS	18	48.80 ton BLS/hr	8.78E-06	427,488 ton BLS/yr	22	3.85E-05	
No. 3 Recovery Boiler (EU 007)	1.13E-04 lb/10^3 gal No. 6 Fuel Oil	17	0.548 10^3 gal/hr	6.19E-05	2,000 10^3 gal/yr	21	1.13E-04	1.43E-04
	1.80E-07 lb/ton BLS	18	41.18 ton BLS/hr	7.41E-06	360,693 ton BLS/yr	22	3.25E-05	
No. 1 Power Boiler (EU 002) [b,c]	1.13E-04 lb/10^3 gal No. 6 Fuel Oil	17	1.705 10^3 gal/hr	1.93E-04	5,623 10^3 gal/yr	23	3.18E-04	4.95E-04
	2.60E-04 lb/10^6 ft^3 Natural Gas	20	0.249 10^6 ft^3/hr	6.47E-05	2,181 10^6 ft^3/yr	24	2.84E-04	
No. 2 Power Boiler (EU 003)	2.60E-04 lb/10^6 ft^3 Natural Gas	20	0.249 10^6 ft^3/hr	6.47E-05	2,181 10^6 ft^3/yr	24	2.84E-04	2.84E-04
No. 1 Bark Boiler (EU 004) [c]	1.13E-04 lb/10^3 gal No. 6 Fuel Oil	17	1.644 10^3 gal/hr	1.86E-04	14,400 10^3 gal/yr	22	8.14E-04	8.94E-04
	1.09E-05 lb/ton dry wood	19	18.75 tons dry wood/hr	2.04E-04	164,250 tons dry wood/yr	22	8.94E-04	
No. 2 Bark Boiler (EU 019)	1.13E-04 lb/10^3 gal No. 6 Fuel Oil	17	1.233 10^3 gal/hr	1.39E-04	10,800 10^3 gal/yr	22	6.10E-04	1.79E-03
	1.09E-05 lb/ton dry wood	19	37.56 tons dry wood/hr	4.09E-04	329,048 tons dry wood/yr	22	1.79E-03	
Fluorides - F								
No. 2 Recovery Boiler (EU 006)	0.0373 lb/10^3 gal No. 6 Fuel Oil	17	2.192 10^3 gal/hr	0.082	1,700 10^3 gal/yr	21	0.032	0.032
No. 3 Recovery Boiler (EU 007)	0.0373 lb/10^3 gal No. 6 Fuel Oil	17	0.548 10^3 gal/hr	0.020	2,000 10^3 gal/yr	21	0.037	0.037
No. 1 Power Boiler (EU 002) [b,c]	0.0373 lb/10^3 gal No. 6 Fuel Oil	17	1.705 10^3 gal/hr	0.064	5,623 10^3 gal/yr	23	0.105	0.105
No. 1 Bark Boiler (EU 004) [c]	0.0373 lb/10^3 gal No. 6 Fuel Oil	17	1.644 10^3 gal/hr	0.061	14,400 10^3 gal/yr	22	0.269	0.269
No. 2 Bark Boiler (EU 019)	0.0373 lb/10^3 gal No. 6 Fuel Oil	17	1.233 10^3 gal/hr	0.046	10,800 10^3 gal/yr	22	0.201	0.201

Notes:
BLS = black liquor solids
ADUP = air-dried unbleached pulp

Footnotes:
[a] Hourly activity factor based on 320 MMBtu/hr from fuel oil and 97,600 lb/hr BLS to the No. 2 Recovery Boiler, 80 MMBtu/hr from fuel oil and 82,350 lb/hr BLS to the No. 3 Recovery Boiler, 249 MMBtu/hr to the Nos. 1 and 2 Power Boilers, 300 MMBtu/hr from wood and 240 MMBtu/hr from No. 6 fuel oil to the No. 1 Bark Boiler, and 601 MMBtu/hr from wood and 180 MMBtu/hr to the No. 2 Bark Boiler.

[b] Based on the highest emissions from either burning 100% natural gas, or burning 549,900 MMBtu/yr of No. 6 fuel oil and the rest natural gas.

[c] TRS emissions not accounted for in the PSD Applicability table (Table 3-3) since this project will not affect TRS burning.

[d] Assumed all sulfur in the natural gas is converted to SO_2.

References:
1. AP-42, Table 1.3-1, normal firing at 2.5% sulfur.
2. NCASI Technical Bulletin No. 884, Table 4.12, Emissions from NDCE Kraft Recovery Furnaces, median values.
3. NCASI technical Bulletin No. 858, Table 9C. Factor based on total TRS emissions (in lb S/ton ADUP) from Kraft Pulp Mill Evaporators (median value), a 50% increase in evaporator emissions from the black liquor concentrator and 100% conversion to SO_2.
4. AP-42, Table 1.4-2.
5. NCASI Technical Bulletin No. 884, Table 9.6a, for wet wood firing. Emissions based on a stoker boiler and 18 MMBtu/ton dry wood. Assume 40% removal of SO_2 in scrubber.
6. AP-42, Table 1.4-1, large wall-fired boiler (>100 MMBtu/hr) with uncontrolled emissions (Pre-NSPS).
7. AP-42, Table 1.3-1, assuming 99.5% removal in ESP and 2.5% sulfur.
8. Based on maximum permitted emissions (see Permit No. 1230001-016-AV) for the No. 1 Power Boiler and No. 1 Bark Boiler, and proposed TRS limits for the Nos. 2 & 3 Recovery Boilers.
9. Based on maximum permitted emission rate (see Permit No. 1230001-016-AV).
10. Based on AP-42, Table 1.3-4. 63% of PM is PM_{10} and 41% of PM is $PM_{2.5}$. for ESP control; Table 1.3-5, 86% of PM is PM_{10} and 56% of PM is $PM_{2.5}$ for no controls.
11. Based on AP-42, Table 1.4-2. 100% of PM is PM_{10} or $PM_{2.5}$.
12. NCASI Technical Bulletin No. 884, Table 9.6b. 98% of PM is PM_{10} for wet scrubber control.
13. AP-42, Table 1.3-3. Factor represents non-methane TOC emissions from industrial boilers.
14. NCASI Technical Bulletin No. 884, Table 4.2, VOC Content of Uncontrolled Non-Condensible Gases, Pulping & Evaporator NCGs, assuming 50% of total emissions from the new BL concentrator, and 99% destruction in the No. 1 Bark Boiler or No. 1 Power Boiler.
15. NCASI Technical Bulletin No. 858, Table 9C, based on the sum of the median value of each TRS species (0.163 lb/ton ADUP), and assuming 50% of total factor due to new BL concentrator, and 99% destruction in the No. 1 Bark Boiler or No. 1 Power Boiler.
16. Based on similar derivation of sulfuric acid mist from AP-42, Table 1.3-1, for fuel oil: 3.6% of SO_2 becomes SO_3 then take into account the ratio of sulfuric acid mist and sulfur trioxide molecular weights (98/80).
17. Based on AP-42, Table 1.3-11.
18. NCASI Technical Bulletin No. 858, Table 14B, using median NDCE values for ND = 0.
19. NCASI Technical Bulletin No. 858, Table 20B, wood-fired boilers with wet scrubbers and 18 MMBtu/ton dry wood.
20. Based on AP-42, Tabe 1.4-4.
21. Based on the highest consecutive 2-year average fuel oil usage from 1997-2006.
22. Based on continuous operation (8,760 hr/yr).
23. Based on the maximum permitted heat input (249 MMBtu/hr) and 146,000 Btu/gal (8.3 lb/gal) for No. 6 fuel oil (Permit No. 1230001-016-AV). Fuel usage based on 549,900 MMBtu/yr heat input.
24. Based on the maximum permitted heat input (249 MMBtu/hr) and 1,040 MMBtu/Mscf for natural gas (Permit No. 1230001-016-AV).

TABLE 3-3
CONTEMPORANEOUS AND DEBOTTLENECKING EMISSIONS ANALYSIS AND PSD APPLICABILITY
PHASE I, BUCKEYE ENERGY PROJECT, BUCKEYE FLORIDA

Source	EU	Pollutant Emission Rate (TPY)											
Description	ID	SO_2	NO_x	CO	PM	PM_{10}	$PM_{2.5}$	VOC	TRS	SAM	Lead	Mercury	Fluoride
PROJECTED ACTUAL Emissions													
No. 2 Recovery Boiler w/ NDCE	006	343.41	318.81	879.78	129.37	92.24	64.42	18.16	14.24	15.27	3.39E-03	1.10E-04	0.024
BL Concentrator for No. 2 Recovery Boiler		15.01	--	--	--	--	--	0.63	0.15	0.67	--	--	--
BL Storage Tank		--	--	--	--	--	--	0.48	0.79	--	--	--	--
No. 3 Recovery Boiler w/ DCE [a]	007	544.46	207.42	195.75	33.84	25.98	20.35	33.67	12.13	23.96	4.11E-03	8.19E-05	0.031
BLO System for No. 3 Recovery Boiler [a]		--	--	--	0.80	0.80	0.78	19.16	15.04	--	--	--	--
No. 1 Power Boiler [a]	002	585.88	107.09	14.38	41.48	35.69	18.81	0.86	--	25.78	2.69E-03	2.52E-04	0.075
No. 2 Power Boiler [a]	003	0.07	33.43	9.23	0.91	0.91	0.84	0.60	--	--	5.49E-05	3.10E-05	--
No. 1 Bark Boiler [a]	004	63.94	205.06	547.15	129.94	127.35	127.84	31.00	--	2.81	3.68E-02	6.23E-04	0.009
No. 2 Bark Boiler [a]	019	70.09	455.61	1,226.69	345.96	339.04	346.93	69.51	--	1.75	8.20E-02	1.40E-03	0.012
Total- Future Potential		**1,622.86**	**1,327.43**	**2,872.99**	**682.30**	**622.00**	**579.96**	**174.08**	**42.34**	**70.24**	**1.29E-01**	**2.50E-03**	**0.152**
BASELINE ACTUAL Emissions													
No. 2 Recovery Boiler w/ DCE	006	613.59	245.03	243.63	73.61	56.52	33.58	41.98	16.71	27.00	4.93E-03	7.88E-05	0.024
BLO System for No. 2 Recovery Boiler		--	--	--	0.98	0.98	0.98	23.91	18.42	--	--	--	--
No. 3 Recovery Boiler w/ DCE	007	544.46	207.42	195.75	33.84	25.98	20.35	33.67	12.13	23.96	4.11E-03	8.19E-05	0.031
BLO System for No. 3 Recovery Boiler		--	--	--	0.80	0.80	0.78	19.16	15.04	--	--	--	--
No. 1 Power Boiler	002	585.88	107.09	14.38	41.48	35.69	18.81	0.86	--	25.78	2.69E-03	2.52E-04	0.075
No. 2 Power Boiler	003	0.07	33.43	9.23	0.91	0.91	0.84	0.60	--	--	5.49E-05	3.10E-05	--
No. 1 Bark Boiler	004	63.94	205.06	547.15	129.94	127.35	127.84	31.00	--	2.81	3.68E-02	6.23E-04	0.009
No. 2 Bark Boiler	019	70.09	455.61	1,226.69	345.96	339.04	346.93	69.51	--	1.75	8.20E-02	1.40E-03	0.012
Total- BASELINE ACTUAL		**1,878.03**	**1,253.65**	**2,236.84**	**627.52**	**587.27**	**550.10**	**220.69**	**62.30**	**81.30**	**1.31E-01**	**2.47E-03**	**0.152**
Increase Due to Project		**-255.17**	**73.78**	**636.14**	**54.78**	**34.73**	**29.86**	**-46.61**	**-19.96**	**-11.06**	**-1.55E-03**	**3.12E-05**	**0.000**
PSD SIGNIFICANT EMISSION RATE		40	40	100	25	15	NA	40	10	7	0.6	0.1	3.0
Netting Triggered?		No	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No
CONTEMPORANEOUS EMISSION CHANGES													
Tall Oil as Fuel: 1230001-017-AC (2/16/05)		NA	--	--	--	--	--	NA	NA	NA	NA	NA	NA
No. 1 Power Boiler NCG/TRS Destruction 1230001-018-AC (2/16/05)		NA	--	--	--	--	--	NA	NA	NA	NA	NA	NA
Total Contemporaneous Emission Changes		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
TOTAL NET CHANGE		**-255.17**	**73.78**	**636.14**	**54.78**	**34.73**	**29.86**	**-46.61**	**-19.96**	**-11.06**	**-1.55E-03**	**3.12E-05**	**0.000**
PSD SIGNIFICANT EMISSION RATE		40	40	100	25	15	NA	40	10	7	0.6	0.1	3.0
PSD REVIEW TRIGGERED?		No	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No

NA= not applicable; project does not result in a significant emissions increase for this pollutant. Therfore, netting is not triggered for this pollutant.

[a] This emissions unit is not affected during Phase I of the Buckeye Energy Project, and so the projected acutal emissions are equal to the baseline actual emissions.

TABLE 3-4
CONTEMPORANEOUS AND DEBOTTLENECKING EMISSIONS ANALYSIS AND PSD APPLICABILITY
PHASE II, BUCKEYE ENERGY PROJECT, BUCKEYE FLORIDA

Source Description	EU ID	Pollutant Emission Rate (TPY)											
		SO_2	NO_x	CO	PM	PM_{10}	$PM_{2.5}$	VOC	TRS	SAM	Lead	Mercury	Fluoride
PROJECTED ACTUAL Emissions													
No. 2 Recovery Boiler w/ NDCE	006	343.41	318.81	879.78	129.37	92.24	64.42	18.16	14.24	15.27	3.39E-03	1.10E-04	0.024
BL Concentrator for No. 2 Recovery Boiler		15.01	--	--	--	--	--	0.63	0.15	0.67	--	--	--
No. 3 Recovery Boiler w/ NDCE	007	369.76	309.98	828.18	121.65	86.73	60.57	14.92	13.82	16.44	3.22E-03	1.24E-04	0.031
BL Concentrator for No. 3 Recovery Boiler		15.62	--	--	--	--	--	0.66	0.15	0.69	--	--	--
BL Storage Tank		--	--	--	--	--	--	0.48	0.79	--	--	--	--
No. 1 Power Boiler	002	839.08	322.58	91.61	63.31	55.17	37.73	6.00	--	37.30	4.59E-03	4.95E-04	0.105
No. 2 Power Boiler	003	0.65	305.37	91.61	8.29	8.29	8.29	6.00	--	--	5.45E-04	2.84E-04	--
No. 1 Bark Boiler	004	145.55	242.20	647.57	146.83	143.89	143.89	36.70	--	6.47	4.32E-02	7.34E-04	0.016
No. 2 Bark Boiler	019	183.94	523.76	1,413.54	390.93	383.11	383.11	80.10	--	8.18	9.42E-02	1.60E-03	0.019
Bark Handling System [a]		--	--	--	3.68	0.88	0.88	--	--	--	--	--	--
Total- Future Potential		**1,913.01**	**2,022.70**	**3,952.30**	**864.06**	**770.31**	**698.90**	**163.65**	**29.15**	**85.03**	**1.49E-01**	**3.35E-03**	**0.196**
BASELINE ACTUAL Emissions													
No. 2 Recovery Boiler w/ DCE	006	613.59	245.03	243.63	73.61	56.52	33.58	41.98	16.71	27.00	4.93E-03	7.88E-05	0.024
BLO System for No. 2 Recovery Boiler		--	--	--	0.98	0.98	0.98	23.91	18.42	--	--	--	--
No. 3 Recovery Boiler w/ DCE	007	544.46	207.42	195.75	33.84	25.98	20.35	33.67	12.13	23.96	4.11E-03	8.19E-05	0.031
BLO System for No. 3 Recovery Boiler		--	--	--	0.80	0.80	0.78	19.16	15.04	--	--	--	--
No. 1 Power Boiler	002	585.88	107.09	14.38	41.48	35.69	18.81	0.86	--	25.78	2.69E-03	2.52E-04	0.075
No. 2 Power Boiler	003	0.07	33.43	9.23	0.91	0.91	0.84	0.60	--	--	5.49E-05	3.10E-05	--
No. 1 Bark Boiler	004	63.94	205.06	547.15	129.94	127.35	127.84	31.00	--	2.81	3.68E-02	6.23E-04	0.009
No. 2 Bark Boiler	019	70.09	455.61	1,226.69	345.96	339.04	346.93	69.51	--	1.75	8.20E-02	1.40E-03	0.012
Total- BASELINE ACTUAL		**1,878.03**	**1,253.65**	**2,236.84**	**627.52**	**587.27**	**550.10**	**220.69**	**62.30**	**81.30**	**1.31E-01**	**2.47E-03**	**0.152**
Increase Due to Project		**34.98**	**769.05**	**1,715.46**	**236.54**	**183.04**	**148.80**	**-57.04**	**-33.15**	**3.73**	**1.86E-02**	**8.81E-04**	**0.043**
PSD SIGNIFICANT EMISSION RATE		40	40	100	25	15	NA	40	10	7	0.6	0.1	3.0
Netting Triggered?		No	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No
CONTEMPORANEOUS EMISSION CHANGES													
Tall Oil as Fuel: 1230001-017-AC (2/16/05)		NA	--	--	--	--	--	NA	NA	NA	NA	NA	NA
No. 1 Power Boiler NCG/TRS Destruction 1230001-018-AC (2/16/05)		NA	--	--	--	--	--	NA	NA	NA	NA	NA	NA
Total Contemporaneous Emission Changes		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
TOTAL NET CHANGE		**34.98**	**769.05**	**1,715.46**	**236.54**	**183.04**	**148.80**	**-57.04**	**-33.15**	**3.73**	**1.86E-02**	**8.81E-04**	**0.043**
PSD SIGNIFICANT EMISSION RATE		40	40	100	25	15	NA	40	10	7	0.6	0.1	3.0
PSD REVIEW TRIGGERED?		No	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No

NA= not applicable; project does not result in a significant emissions increase for this pollutant. Therfore, netting is not triggered for this pollutant.

[a] Represents the increase in purchased wood/bark from the 13% increase in heat input to the Bark Boilers (see Table B-2).

TABLE A-1
BASELINE ACTUAL ANNUAL (1997-2006) EMISSION FACTORS FROM ANNUAL OPERATING REPORTS FOR THE NO. 2 RECOVERY BOILER
BUCKEYE ENERGY PROJECT PROJECT, BUCKEYE FLORIDA

Source Description	EU ID	Annual Operation (hr/yr)	Annual Fuel Usage	Factor Units	Pollutant Emission Factors											
					SO_2	NO_x	CO	PM	PM_{10}	$PM_{2.5}$	VOC	TRS	SAM	Lead	Mercury	Fluoride
No. 2 Recovery Boiler	006															
1997 Actual Emission Factors		7,669	247,035 ton ADUP	lb/ton ADUP	3.24 [g]	1.8 [g]	9.9 [h]	49.6 [a,r]	26.3 [a,s]	--	1.05 [g]	3.5 [t]	--	9.90E-06 [q]	--	--
1998 Actual Emission Factors		7,314	234,043 ton ADUP	lb/ton ADUP	3.24 [g]	1.8 [g]	9.9 [h]	53.9 [a,r]	28.6 [a,s]	--	1.05 [g]	3.7 [t]	--	9.90E-06 [q]	--	--
1999 Actual Emission Factors		7,854	253,946 ton ADUP	lb/ton ADUP	3.24 [g]	1.8 [g]	9.9 [h]	57.5 [a,r]	30.5 [a,s]	--	1.05 [g]	3.9 [t]	--	5.40E-05 [o]	--	--
2000 Actual Emission Factors		7,597	242,754 ton ADUP	lb/ton ADUP	3.30 [g]	1.8 [g]	9.9 [h]	1.29 [i]	0.97 [j]	--	1.06 [g]	0.12 [k]	--	2.70E-05 [p]	--	--
			371.05 $x10^3$ gal	$lb/10^3$ gal	392.5 [d]	47.0 [d]	5.0 [d]	0.13 [b]	0.10 [c]	--	0.28 [f]	--	--	1.51E-03 [e]	--	--
2001 Actual Emission Factors		7,028	224,228 ton ADUP	lb/ton ADUP	3.47 [l]	1.7 [l]	10.0 [l]	1.46 [i]	1.09 [j]	--	0.38 [l]	0.12 [k]	--	--	--	--
			1423.49 $x10^3$ gal	$lb/10^3$ gal	392.5 [d]	47.0 [d]	--	0.13 [h]	--	--	--	--	--	--	--	--
2002 Actual Emission Factors		7,785	250,357 ton ADUP	lb/ton ADUP	3.47 [l]	1.7 [l]	10.0 [l]	1.20 [i]	0.90 [j]	--	0.38 [l]	0.12 [k]	--	--	--	--
			608.69 $x10^3$ gal	$lb/10^3$ gal	392.5 [d]	47.0 [d]	--	0.13 [b]	--	--	--	--	--	--	--	--
2003 Actual Emission Factors		7,515	218,575 ton ADUP	lb/ton ADUP	3.47 [l]	1.7 [l]	10.0 [l]	1.14 [i]	0.85 [j]	--	0.38 [l]	0.12 [k]	--	--	--	--
			1,323 $x10^3$ gal	$lb/10^3$ gal	392.5 [d]	47.0 [d]	--	0.13 [b]	--	--	--	--	--	--	--	--
2004 Actual Emission Factors		8,216	266,237 ton ADUP	lb/ton ADUP	3.47 [l]	1.7 [l]	10.0 [l]	0.42 [i]	0.32 [j]	--	0.38 [l]	0.12 [k]	--	--	--	--
			1,300 $x10^3$ gal	$lb/10^3$ gal	392.5 [d]	47.0 [d]	--	0.13 [b]	--	--	--	--	--	--	--	--
2005 Actual Emission Factors		8,251	266,424 ton ADUP	lb/ton ADUP	3.18 [m]	1.6 [m]	3.3 [m]	0.44 [i]	0.33 [n]	--	0.59 [m]	0.13 [k]	--	--	--	--
			1,024 $x10^3$ gal	$lb/10^3$ gal	392.5 [d]	47.0 [d]	--	0.13 [b]	--	--	--	--	--	--	--	--
2006 Actual Emission Factors		8,364	264,844 ton ADUP	lb/ton ADUP	4.35 [m]	1.4	4.5	0.47	0.35	--	0.59 [m]	0.12	--	--	--	--
			1,033 $x10^3$ gal	$lb/10^3$ gal	392.5 [d]	47.0 [d]	5.0 [d]	0.13 [b]	0.11 [c]	--	0.28 [f]	--	--	--	--	--

[a] Units in lb/hr.
[b] AP-42 Table 1.3-1. Assume max fuel sulfur content of 2.5% and 99.5% removal in ESP.
[c] AP-42 Table 1.3-5. Assume 86% of PM is PM10.
[d] AP-42 Table 1.3-1. Assume max fuel sulfur content of 2.5%.
[e] AP-42 Table 1.3-11.
[f] AP-42 Table 1.3-3. Assume max fuel sulfur content of 2.5%.
[g] NCASI TB #646 (DCE Rec. Furnace).
[h] NCASI TB #416.
[i] Average of last three stack tests.
[j] AP-42 Table 10.2-3 (NDCE Rec. Furnace) 74.8% of PM is PM10.
[k] Process and CEMS data.
[l] NCASI Environmental Resource Handbook - Chemical Recovery Processes.
[m] NCASI TB #884. Average factor used.
[n] NCASI TB #884. Table 4.11 (DCE Rec. Furnace). 75% of PM is PM10.
[o] In-house DCE engineering tests. Roy F. Weston, Inc.
[p] Factor provided by Buckeye Florida.
[q] Engineering stack test data x 1.15, February 1996. Roy F. Weston, Inc.
[r] Based on average of last three stack tests x 1.15.
[s] NCASI Technical Bulletin No. 94. 53% of PM is PM10.
[t] CEMS data.

TABLE A-2
REVISED EMISSION FACTORS USED TO DETERMINE ACTUAL ANNUAL EMISSIONS (1997-2006) FOR THE NO. 2 RECOVERY BOILER
BUCKEYE ENERGY PROJECT PROJECT, BUCKEYE FLORIDA

Source Description	EU ID	Annual Operation (hr/yr)	Annual Fuel Usage	Factor Units	Pollutant Emission Factors											
					SO_2	NO_x	CO	PM	PM_{10}	$PM_{2.5}$	VOC	TRS	SAM	Lead	Mercury	Fluoride
No. 2 Recovery Boiler	006															
1997 Actual Emission Factors																
- ADUP		7,669	247,035 ton ADUP	lb/ton ADUP	3.44 [A]	1.64 [A]	1.82 [A]	1.21 [B]	0.93 [A]	0.65 [A]	0.32 [A]	3.5 [B,J]	0.15 [K]	3.1E-05 [I]	9.9E-08 [C]	--
- Residual Oil - 2.5% Suflur			347.04 x10^3 gal	lb/10^3 gal	392.5 [E]	47.0 [E]	5 [E]	0.13 [E]	0.08 [F]	0.05 [F]	0.28 [G]	--	17.27 [K]	1.5E-03 [H]	1.1E-04 [H]	3.7E-02 [H]
1998 Actual Emission Factors																
- ADUP		7,314	234,043 ton ADUP	lb/ton ADUP	3.44 [A]	1.64 [A]	1.82 [A]	1.22 [B]	0.94 [A]	0.65 [A]	0.32 [A]	3.7 [B,J]	0.15 [K]	3.1E-05 [I]	9.9E-08 [C]	--
- Residual Oil - 2.5% Suflur			342.91 x10^3 gal	lb/10^3 gal	392.5 [E]	47.0 [E]	5 [E]	0.13 [E]	0.08 [F]	0.05 [F]	0.28 [G]	--	17.27 [K]	1.5E-03 [H]	1.1E-04 [H]	3.7E-02 [H]
1999 Actual Emission Factors																
- ADUP		7,854	253,946 ton ADUP	lb/ton ADUP	3.44 [A]	1.64 [A]	1.82 [A]	1.08 [B]	0.83 [A]	0.58 [A]	0.32 [A]	3.9 [B,J]	0.15 [K]	3.1E-05 [I]	9.9E-08 [C]	--
- Residual Oil - 2.5% Suflur			344.02 x10^3 gal	lb/10^3 gal	392.5 [E]	47.0 [E]	5 [E]	0.13 [E]	0.08 [F]	0.05 [F]	0.28 [G]	--	17.27 [K]	1.5E-03 [H]	1.1E-04 [H]	3.7E-02 [H]
2000 Actual Emission Factors																
- ADUP		7,597	242,754 ton ADUP	lb/ton ADUP	3.44 [A]	1.64 [A]	1.82 [A]	1.12 [B]	0.86 [A]	0.60 [A]	0.32 [A]	0.117 [D]	0.15 [K]	3.1E-05 [I]	9.9E-08 [C]	--
- Residual Oil - 1.7% Suflur			371.05 x10^3 gal	lb/10^3 gal	266.9 [E]	47.0 [E]	5 [E]	0.09 [E]	0.06 [F]	0.04 [F]	0.28 [G]	--	11.74 [K]	1.5E-03 [H]	1.1E-04 [H]	3.7E-02 [H]
2001 Actual Emission Factors																
- ADUP		7,028	224,228 ton ADUP	lb/ton ADUP	3.44 [A]	1.64 [A]	1.82 [A]	0.97 [B]	0.74 [A]	0.52 [A]	0.32 [A]	0.118 [D]	0.15 [K]	3.1E-05 [I]	9.9E-08 [C]	--
- Residual Oil - 1.8% Suflur			1423.49 x10^3 gal	lb/10^3 gal	282.6 [E]	47.0 [E]	5 [E]	0.10 [E]	0.06 [F]	0.04 [F]	0.28 [G]	--	12.43 [K]	1.5E-03 [H]	1.1E-04 [H]	3.7E-02 [H]
2002 Actual Emission Factors																
- ADUP		7,785	250,357 ton ADUP	lb/ton ADUP	3.44 [A]	1.64 [A]	1.82 [A]	0.81 [B]	0.62 [A]	0.43 [A]	0.32 [A]	0.121 [D]	0.15 [K]	3.1E-05 [I]	9.9E-08 [C]	--
- Residual Oil - 1.9% Suflur			608.69 x10^3 gal	lb/10^3 gal	298.3 [E]	47.0 [E]	5 [E]	0.10 [E]	0.07 [F]	0.04 [F]	0.28 [G]	--	13.13 [K]	1.5E-03 [H]	1.1E-04 [H]	3.7E-02 [H]
2003 Actual Emission Factors																
- ADUP		7,515	218,575 ton ADUP	lb/ton ADUP	3.44 [A]	1.64 [A]	1.82 [A]	0.63 [B]	0.49 [A]	0.34 [A]	0.32 [A]	0.12 [D]	0.15 [K]	3.1E-05 [I]	9.9E-08 [C]	--
- Residual Oil - 1.6% Suflur			1,323 x10^3 gal	lb/10^3 gal	251.2 [E]	47.0 [E]	5 [E]	0.09 [E]	0.06 [F]	0.04 [F]	0.28 [G]	--	11.05 [K]	1.5E-03 [H]	1.1E-04 [H]	3.7E-02 [H]
2004 Actual Emission Factors																
- ADUP		8,216	266,237 ton ADUP	lb/ton ADUP	3.44 [A]	1.64 [A]	1.82 [A]	0.64 [B]	0.49 [A]	0.34 [A]	0.32 [A]	0.124 [D]	0.15 [K]	3.1E-05 [I]	9.9E-08 [C]	--
- Residual Oil - 1.8% Suflur			1,300 x10^3 gal	lb/10^3 gal	282.6 [E]	47.0 [E]	5 [E]	0.10 [E]	0.06 [F]	0.04 [F]	0.28 [G]	--	12.43 [K]	1.5E-03 [H]	1.1E-04 [H]	3.7E-02 [H]
2005 Actual Emission Factors																
- ADUP		8,251	266,424 ton ADUP	lb/ton ADUP	3.44 [A]	1.64 [A]	1.82 [A]	0.47 [B]	0.36 [A]	0.25 [A]	0.32 [A]	0.127 [D]	0.15 [K]	3.1E-05 [I]	9.9E-08 [C]	--
- Residual Oil - 1.6% Suflur			1,024 x10^3 gal	lb/10^3 gal	251.2 [E]	47.0 [E]	5 [E]	0.09 [E]	0.06 [F]	0.04 [F]	0.28 [G]	--	11.05 [K]	1.5E-03 [H]	1.1E-04 [H]	3.7E-02 [H]
2006 Actual Emission Factors																
- ADUP		8,364	264,844 ton ADUP	lb/ton ADUP	3.44 [A]	1.64 [A]	1.82 [A]	0.48 [B]	0.37 [A]	0.26 [A]	0.32 [A]	0.12 [D]	0.15 [K]	3.1E-05 [I]	9.9E-08 [C]	--
- Residual Oil - 1.8% Suflur			1,033 x10^3 gal	lb/10^3 gal	282.6 [E]	47.0 [E]	5 [E]	0.10 [E]	0.06 [F]	0.04 [F]	0.28 [G]	--	12.43 [K]	1.5E-03 [H]	1.1E-04 [H]	3.7E-02 [H]

[A] NCASI Technical Bulletin No. 884, Table 4.11 (DCE Kraft Recovery Furnaces, median values). Assuming 1.5 ton BLS = 1 ton ADUP. 76.8% of PM is PM_{10}, 53.4% of PM is $PM_{2.5}$.
[B] Based on 5-year average stack tests (see Table A-5). Assuming 1.5 ton BLS = 1 ton ADUP.
[C] NCASI Technical Bulletin No. 858, Table 13B (DCE Recovery Furnaces, median values). Assuming 1.5 ton BLS = 1 ton ADUP.
[D] Process and CEMS data as reported in the AORs.
[E] AP-42, Table 1.3-1. Sulfur content reported in the AOR and assuming 99.5% removal of PM in ESP.
[F] AP-42, Table 1.3-4 for combustion of No. 6 fuel oil with ESP control. 63% of PM emissions are PM_{10}, 41% of PM emissions are $PM_{2.5}$.
[G] AP-42, Table 1.3-3.
[H] AP-42, Table 1.3-11. Based on uncontrolled emissions.
[I] Based on average of stack tests performed by Roy F. Weston, Inc. (8.6E-6 lb/ton ADUP and 5.4E-5 lb/ton ADUP).
[J] CEMS data as reported in the AORs.
[K] Based on similar derivation of sulfuric acid mist from AP-42 for fuel oil: 3.6% of SO_2 becomes SO_3 then take into account the ratio of sulfuric acid mist and sulfur trioxide molecular weights (98/80).

TABLE A-3
BASELINE ACTUAL ANNUAL (1997-2006) EMISSIONS FOR THE NO. 2 RECOVERY BOILER
BUCKEYE ENERGY PROJECT, BUCKEYE FLORIDA

Source Description	EU ID	Pollutant Emission Rate (TPY)											
		SO_2	NO_x	CO	PM	PM_{10}	$PM_{2.5}$	VOC	TRS	SAM	Lead	Mercury	Fluoride
No. 2 Recovery Boiler	006												
1997 Actual Emissions													
- ADUP		424.28	201.95	224.18	149.22	114.60	79.68	38.91	13.42	18.67	3.87E-03	1.22E-05	--
- Residual Oil		68.11	8.16	0.87	0.02	0.01	0.01	0.05	--	3.00	2.62E-04	1.96E-05	6.47E-03
- Total		***492.39***	***210.11***	***225.05***	***149.24***	***114.62***	***79.69***	***38.96***	***13.42***	***21.67***	***4.13E-03***	***3.18E-05***	***6.47E-03***
1998 Actual Emissions													
- ADUP		401.97	191.33	212.39	143.09	109.90	76.41	36.86	13.53	17.69	3.66E-03	1.16E-05	--
- Residual Oil		67.30	8.06	0.86	0.02	0.01	0.01	0.05	--	2.96	2.59E-04	1.94E-05	6.40E-03
- Total		***469.26***	***199.39***	***213.25***	***143.12***	***109.91***	***76.42***	***36.91***	***13.53***	***20.65***	***3.92E-03***	***3.10E-05***	***6.40E-03***
1999 Actual Emissions													
- ADUP		436.15	207.60	230.46	137.71	105.76	73.54	40.00	15.32	19.19	3.97E-03	1.26E-05	--
- Residual Oil		67.51	8.08	0.86	0.02	0.01	0.01	0.05	--	2.97	2.60E-04	1.94E-05	6.42E-03
- Total		***503.67***	***215.69***	***231.32***	***137.73***	***105.77***	***73.55***	***40.04***	***15.32***	***22.16***	***4.23E-03***	***3.20E-05***	***6.42E-03***
2000 Actual Emissions													
- ADUP		416.93	198.45	220.30	136.40	104.75	72.84	38.23	14.20	18.34	3.80E-03	1.20E-05	--
- Residual Oil		49.52	8.72	0.93	0.02	0.01	0.01	0.05	--	2.18	2.80E-04	2.10E-05	6.92E-03
- Total		***466.45***	***207.17***	***221.23***	***136.41***	***104.76***	***72.84***	***38.29***	***14.20***	***20.52***	***4.08E-03***	***3.30E-05***	***6.92E-03***
2001 Actual Emissions													
- ADUP		385.11	183.31	203.49	108.54	83.36	57.96	35.32	13.23	16.94	3.51E-03	1.11E-05	--
- Residual Oil		201.14	33.45	3.56	0.07	0.04	0.03	0.20	--	8.85	1.07E-03	8.04E-05	2.65E-02
- Total		***586.25***	***216.76***	***207.05***	***108.61***	***83.40***	***57.99***	***35.52***	***13.23***	***25.80***	***4.58E-03***	***9.15E-05***	***2.65E-02***
2002 Actual Emissions													
- ADUP		429.99	204.67	227.20	101.58	78.02	54.25	39.43	15.15	18.92	3.92E-03	1.24E-05	--
- Residual Oil		90.79	14.30	1.52	0.03	0.02	0.01	0.09	--	3.99	4.60E-04	3.44E-05	1.14E-02
- Total		***520.77***	***218.97***	***228.72***	***101.62***	***78.04***	***54.26***	***39.52***	***15.15***	***22.91***	***4.38E-03***	***4.68E-05***	***1.14E-02***
2003 Actual Emissions													
- ADUP		375.40	178.69	198.36	69.04	53.03	36.87	34.43	13.11	16.52	3.42E-03	1.08E-05	--
- Residual Oil		166.17	31.09	3.31	0.06	0.04	0.02	0.19	--	7.31	9.99E-04	7.48E-05	2.47E-02
- Total		***541.57***	***209.78***	***201.66***	***69.10***	***53.06***	***36.89***	***34.61***	***13.11***	***23.83***	***4.42E-03***	***8.56E-05***	***2.47E-02***
2004 Actual Emissions													
- ADUP		457.26	217.65	241.61	84.79	65.12	45.28	41.93	16.51	20.12	4.17E-03	1.32E-05	--
- Residual Oil		183.65	30.54	3.25	0.06	0.04	0.03	0.18	--	8.08	9.81E-04	7.34E-05	2.42E-02
- Total		***640.92***	***248.19***	***244.86***	***84.85***	***65.16***	***45.30***	***42.11***	***16.51***	***28.20***	***5.15E-03***	***8.66E-05***	***2.42E-02***
2005 Actual Emissions													
- ADUP		457.58	217.80	241.78	62.32	47.86	33.28	41.96	16.92	20.13	4.17E-03	1.32E-05	--
- Residual Oil		128.67	24.07	2.56	0.05	0.03	0.02	0.14	--	5.66	7.73E-04	5.79E-05	1.91E-02
- Total		***586.25***	***241.88***	***244.34***	***62.37***	***47.89***	***33.30***	***42.11***	***16.92***	***25.80***	***4.94E-03***	***7.11E-05***	***1.91E-02***
2006 Actual Emissions													
- ADUP		454.87	216.51	240.35	63.39	48.68	33.85	41.71	15.89	20.01	4.14E-03	1.31E-05	--
- Residual Oil		145.93	24.27	2.58	0.05	0.03	0.02	0.14	--	6.42	7.80E-04	5.84E-05	1.93E-02
- Total		***600.80***	***240.78***	***242.93***	***63.44***	***48.72***	***33.87***	***41.86***	***15.89***	***26.44***	***4.92E-03***	***7.15E-05***	***1.93E-02***

TABLE A-4
SUMMARY OF BASELINE 2-YEAR AVERAGE ACTUAL EMISSIONS (1997-2006) FOR THE NO. 2 RECOVERY BOILER
BUCKEYE ENERGY PROJECT, BUCKEYE FLORIDA

Source Description	EU ID	Pollutant Emission Rate (TPY) SO_2	NO_x	CO	PM	PM_{10}	$PM_{2.5}$	VOC	TRS	SAM	Lead	Mercury	Fluoride
No. 2 Recovery Boiler	006												
1997 - 1998 Average Emissions													
- ADUP		413.13	196.64	218.29	146.16	112.25	78.05	37.88	13.48	18.18	3.76E-03	1.19E-05	--
- Residual Oil		67.70	8.11	0.86	0.02	0.01	0.01	0.05	--	2.98	2.60E-04	1.95E-05	0.006
- Total		***480.83***	***204.75***	***219.15***	***146.18***	***112.26***	***78.06***	***37.93***	***13.48***	***21.16***	***4.02E-03***	***3.14E-05***	***0.006***
1998 - 1999 Average Emissions													
- ADUP		419.06	199.47	221.43	140.40	107.83	74.97	38.43	14.42	18.44	3.82E-03	1.21E-05	--
- Residual Oil		67.41	8.07	0.86	0.02	0.01	0.01	0.05	--	2.97	2.59E-04	1.94E-05	0.006
- Total		***486.47***	***207.54***	***222.28***	***140.42***	***107.84***	***74.98***	***38.48***	***14.42***	***21.40***	***4.08E-03***	***3.15E-05***	***0.006***
1999 - 2000 Average Emissions													
- ADUP		426.54	203.03	225.38	137.05	105.26	73.19	39.12	14.76	18.77	3.89E-03	1.23E-05	--
- Residual Oil		58.52	8.40	0.89	0.02	0.01	0.01	0.05	--	2.57	2.70E-04	2.02E-05	0.007
- Total		***485.06***	***211.43***	***226.27***	***137.07***	***105.27***	***73.19***	***39.17***	***14.76***	***21.34***	***4.16E-03***	***3.25E-05***	***0.007***
2000 - 2001 Average Emissions													
- ADUP		401.02	190.88	211.89	122.47	94.06	65.40	36.77	13.72	17.64	3.65E-03	1.16E-05	--
- Residual Oil		125.33	21.09	2.24	0.04	0.03	0.02	0.13	--	5.51	6.77E-04	5.07E-05	0.017
- Total		***526.35***	***211.96***	***214.14***	***122.51***	***94.08***	***65.42***	***36.90***	***13.72***	***23.16***	***4.33E-03***	***6.23E-05***	***0.017***
2001 - 2002 Average Emissions													
- ADUP		407.55	193.99	215.34	105.06	80.69	56.10	37.37	14.19	17.93	3.71E-03	1.17E-05	--
- Residual Oil		145.96	23.88	2.54	0.05	0.03	0.02	0.14	--	6.42	7.67E-04	5.74E-05	0.019
- Total		***553.51***	***217.86***	***217.88***	***105.11***	***80.72***	***56.12***	***37.52***	***14.19***	***24.35***	***4.48E-03***	***6.92E-05***	***0.019***
2002 - 2003 Average Emissions													
- ADUP		402.70	191.68	212.78	85.31	65.52	45.56	36.93	14.13	17.72	3.67E-03	1.16E-05	--
- Residual Oil		128.48	22.70	2.41	0.05	0.03	0.02	0.14	--	5.65	7.29E-04	5.46E-05	0.018
- Total		***531.17***	***214.37***	***215.19***	***85.36***	***65.55***	***45.58***	***37.06***	***14.13***	***23.37***	***4.40E-03***	***6.62E-05***	***0.018***
2003 - 2004 Average Emissions													
- ADUP		416.33	198.17	219.98	76.92	59.07	41.07	38.18	14.81	18.32	3.79E-03	1.20E-05	--
- Residual Oil		174.91	30.82	3.28	0.06	0.04	0.03	0.18	--	7.70	9.90E-04	7.41E-05	0.024
- Total		***591.25***	***228.98***	***223.26***	***76.98***	***59.11***	***41.10***	***38.36***	***14.81***	***26.01***	***4.78E-03***	***8.61E-05***	***0.024***
2004 - 2005 Average Emissions													
- ADUP		457.42	217.73	241.69	73.55	56.49	39.28	41.95	16.71	20.13	4.17E-03	1.32E-05	--
- Residual Oil		156.16	27.31	2.91	0.06	0.03	0.02	0.16	--	6.87	8.77E-04	6.57E-05	0.022
- Total		***613.59***	***245.03***	***244.60***	***73.61***	***56.52***	***39.30***	***42.11***	***16.71***	***27.00***	***5.05E-03***	***7.88E-05***	***0.022***
2005 - 2006 Average Emissions													
- ADUP		456.23	217.16	241.06	62.86	48.27	33.57	41.84	16.40	20.07	4.16E-03	1.31E-05	--
- Residual Oil		137.30	24.17	2.57	0.05	0.03	0.02	0.14	--	6.04	7.77E-04	5.81E-05	0.019
- Total		***593.53***	***241.33***	***243.63***	***62.90***	***48.30***	***33.58***	***41.98***	***16.40***	***26.12***	***4.93E-03***	***7.13E-05***	***0.019***
		'04 - '05	**'04 - '05**	**'04 - '05**	**'97 - '98**	**'97 - '98**	**'97 - '98**	**'04 - '05**	**'05 - '06**	**'04 - '05**	**'04 - '05**	**'03 - '04**	**'03 - '04**
Highest Consecutive 2-Year Average		**613.59**	**245.03**	**244.60**	**146.18**	**112.26**	**78.06**	**42.11**	**16.71**	**27.00**	**5.05E-03**	**8.61E-05**	**0.024**

TABLE A-5
STACK TESTS AND EMISSIONS DATA FOR THE NO. 2 RECOVERY BOILER
BUCKEYE ENERGY PROJECT, BUCKEYE FLORIDA

PM												TRS	
							5-year Average						
Test	Emission Rate [a]			Process Rate	Emission Factor	Averaging	Emission Rate		Process Rate	Emission Factor		Test	
Date	(lb/hr)	(gr/dscf @ 8% O_2) [b]	(corrected lb/hr) [b]	(ton BLS/hr)	(lb/ton BLS) [c]	Period	(lb/hr) [d]	(gr/dscf @ 8% O_2) [e]	(tons/hr BLS)	(lb/ton BLS)		Date	Emission Rate [f]
No. 2 Recovery Boiler (EU 006)													
3/2/1994	53.23	0.070	33.67	45.98	0.73								
3/14/1995	49.80	0.055	40.08	46.01	0.87								
2/28/1996	34.70	0.036	34.70	48.50	0.72								
2/6/1997	44.90	0.045	43.93	48.50	0.91	1994-1998	38.25	0.042	47.48	0.81		1997	3.5 lb/hr
4/15/1998	61.23	0.069	38.85	48.42	0.80	1995-1999	39.09	0.042	47.99	0.82		1998	3.7 lb/hr
3/16/1999	44.00	0.051	37.89	48.50	0.78	1996-2000	35.05	0.038	48.48	0.72		1999	3.9 lb/hr
3/10/2000	19.90	0.023	19.90	48.50	0.41	1997-2001	36.32	0.040	48.48	0.75		2000	0.117 lb/ton ADUP
3/7/2001	78.07	0.084	41.04	48.50	0.85	1998-2002	31.29	0.035	48.48	0.65		2001	0.118 lb/ton ADUP
3/13/2002	18.77	0.020	18.77	48.50	0.39	1999-2003	26.24	0.029	48.50	0.54		2002	0.121 lb/ton ADUP
4/24/2003	13.60	0.015	13.60	48.50	0.28	2000-2004	20.43	0.022	48.50	0.42		2003	0.12 lb/ton ADUP
4/6/2004	8.83	0.008	8.83	48.50	0.18	2001-2005	20.59	0.021	48.50	0.42		2004	0.124 lb/ton ADUP
4/6/2005	20.73	0.020	20.73	48.50	0.43	2002-2006	15.13	0.015	48.50	0.31		2005	0.127 lb/ton ADUP
4/5/2006	13.70	0.012	13.70	48.50	0.28	2003-2007	15.44	0.014	48.41	0.32		2006	0.12 lb/ton ADUP
5/8/2007	20.33	0.017	20.33	48.05	0.42								

[a] Maximum permitted PM emission rate is 3 lb/3,000 lbs BLS, or 97.6 lb/hr.

[b] Maximum permitted PM emission rate, as required by 40 CFR 63 Subpart MM, is 0.044 gr/dscf @ 8% O_2 after March 13, 2004. PM emission rates above 0.044 gr/dscf @ 8% O_2 have been reduced by the ratio of the 0.040 gr/dscf and the measured grain loading.

[c] Emisison factor in lb/ton BLS has been calculated using the corrected lb/hr PM emission rate.

[d] 5-year averages based on corrected lb/hr PM emission rate.

[e] Values for grain loading over 0.044 gr/dscf in the 5-year average have been corrected to reflect the requirements of 40 CFR 63 Subpart MM.

[f] Based on CEMS data as reported in the AORs.

NOTE:
The electrostatic precipitator was upgraded after the 4/24/2003 stack test.

TABLE A-6
BASELINE ACTUAL OPERATING CONDITIONS FOR THE NO. 2 RECOVERY BOILER
BUCKEYE ENERGY PROJECT, BUCKEYE FLORIDA

Year	Operating Hours (hours/yr)	Fuel Usage: Equivalent ADUP (TPY) [a]	Fuel Usage: No. 6 Fuel Oil (10^3 gal/yr)	Fuel Usage: No. 6 Fuel Oil (% Sulfur)	2-Year Period	2-Year Average: Plant Operation (hours/yr)	2-Year Average: Equivalent ADUP (TPY) [a]	2-Year Average: No. 6 Fuel Oil (10^3 gal/yr)	2-Year Average: No. 6 Fuel Oil (% Sulfur)
No. 2 Recovery Boiler (EU 006)									
1997	7,669	247,035	347.0	2.5	--	--	--	--	--
1998	7,314	234,043	342.9	2.5	1997 - 1998	7,492	240,539	345.0	2.5
1999	7,854	253,946	344.0	2.5	1998 - 1999	7,584	243,995	343.5	2.5
2000	7,597	242,754	371.1	1.7	1999 - 2000	7,726	248,350	357.5	2.1
2001	7,028	224,228	1,423.5	1.8	2000 - 2001	7,313	233,491	897.3	1.8
2002	7,785	250,357	608.7	1.9	2001 - 2002	7,407	237,293	1,016.1	1.9
2003	7,515	218,575	1,323.0	1.6	2002 - 2003	7,650	234,466	965.9	1.8
2004	8,216	266,237	1,299.8	1.8	2003 - 2004	7,866	242,406	1,311.4	1.7
2005	8,251	266,424	1,024.5	1.6	2004 - 2005	8,234	266,331	1,162.1	1.7
2006	8,364	264,844	1,032.8	1.8	2005 - 2006	8,308	265,634	1,028.6	1.7
Maximum:	8,364	266,424	1,423.5	2.5		Maximum 2-Year Average Conditions			
Average:	7,759	246,844	811.7	2.0		'05-'06	'04-'05	'03-'04	'97-'99
Minimum:	7,028	218,575	342.9	1.6		8,308	266,331	1,311.4	2.5

[a] Equivalent pulp production based on 1.5 tons BLS = 1.0 tons ADUP.

TABLE A-7
BASELINE ACTUAL ANNUAL (1997-2006) EMISSION FACTORS FROM ANNUAL OPERATING REPORTS FOR THE NO. 3 RECOVERY BOILER
BUCKEYE ENERGY PROJECT PROJECT, BUCKEYE FLORIDA

Source Description	EU ID	Annual Operation (hr/yr)	Annual Fuel Usage	Factor Units	Pollutant Emission Factors											
					SO_2	NO_x	CO	PM	PM_{10}	$PM_{2.5}$	VOC	TRS	SAM	Lead	Mercury	Fluoride
No. 3 Recovery Boiler	007															
1996 Actual Emission Factors		7,791	170,134 ton ADUP	lb/ton ADUP	3.24 [g]	1.8 [g]	9.9 [h]	38.0 [a,r]	20.1 [a,s]	--	1.05 [g]	3.5 [t]	--	9.90E-06 [q]	--	--
1997 Actual Emission Factors		7,445	200,879 ton ADUP	lb/ton ADUP	3.24 [g]	1.8 [g]	9.9 [h]	29.4 [a,r]	15.6 [a,s]	--	1.05 [g]	3.7 [t]	--	9.90E-06 [q]	--	--
1998 Actual Emission Factors		7,311	197,516 ton ADUP	lb/ton ADUP	3.24 [g]	1.8 [g]	9.9 [h]	8.9 [a,r]	4.7 [a,s]	--	1.05 [g]	3.7 [t]	--	9.90E-06 [q]	--	--
1999 Actual Emission Factors		7,607	208,013 ton ADUP	lb/ton ADUP	3.24 [g]	1.8 [g]	9.9 [h]	8.1 [a,r]	4.3 [a,s]	--	1.05 [g]	3.0 [t]	--	5.40E-05 [o]	--	--
2000 Actual Emission Factors		7,995	214,986 ton ADUP	lb/ton ADUP	3.30 [g]	1.8 [g]	9.9 [h]	0.29 [i]	0.21 [j]	--	1.06 [g]	0.124 [k]	--	2.70E-05 [p]	--	--
			425.44 $x10^3$ gal	$lb/10^3$ gal	392.5 [d]	47.0 [d]	5.0 [d]	0.13 [b]	0.10 [c]	--	0.28 [f]	--	--	1.51E-03 [e]	--	--
2001 Actual Emission Factors		7,556	203,596 ton ADUP	lb/ton ADUP	3.47 [l]	1.7 [l]	10.0 [l]	0.28 [i]	0.21 [j]	--	1.06 [l]	0.112 [k]	--	--	--	--
			1457.30 $x10^3$ gal	$lb/10^3$ gal	392.5 [d]	47.0 [d]	--	0.13 [b]	--	--	--	--	--	--	--	--
2002 Actual Emission Factors		7,974	215,394 ton ADUP	lb/ton ADUP	3.47 [l]	1.7 [l]	10.0 [l]	0.29 [i]	0.22 [j]	--	1.06 [l]	0.113 [k]	--	--	--	--
			1258.50 $x10^3$ gal	$lb/10^3$ gal	392.5 [d]	47.0 [d]	--	0.13 [b]	--	--	--	--	--	--	--	--
2003 Actual Emission Factors		8,057	204,145 ton ADUP	lb/ton ADUP	3.47 [l]	1.7 [l]	10.0 [l]	0.32 [i]	0.24 [j]	--	0.38 [l]	0.113 [k]	--	--	--	--
			1,718 $x10^3$ gal	$lb/10^3$ gal	392.5 [d]	47.0 [d]	--	0.13 [b]	--	--	--	--	--	--	--	--
2004 Actual Emission Factors		8,369	218,912 ton ADUP	lb/ton ADUP	3.47 [l]	1.7 [l]	10.0 [l]	0.27 [i]	0.20 [j]	--	0.38 [l]	0.112 [k]	--	--	--	--
			1,621 $x10^3$ gal	$lb/10^3$ gal	392.5 [d]	47.0 [d]	--	0.13 [b]	--	--	--	--	--	--	--	--
2005 Actual Emission Factors		8,195	216,174 ton ADUP	lb/ton ADUP	3.18 [m]	1.6 [m]	3.3 [m]	0.36 [i]	0.27 [n]	--	0.59 [m]	0.111 [k]	--	--	--	--
			896 $x10^3$ gal	$lb/10^3$ gal	392.5 [d]	47.0 [d]	--	0.13 [b]	--	--	--	--	--	--	--	--
2006 Actual Emission Factors		7,850	209,523 ton ADUP	lb/ton ADUP	4.35	1.4	2.3	0.36 [i]	0.27 [n]	--	0.59 [m]	0.101	--	--	--	--
			1,173 $x10^3$ gal	$lb/10^3$ gal	392.5 [d]	47.0 [d]	5.0 [d]	0.13 [b]	--	--	0.28 [f]	--	--	--	--	--

[a] Units in lb/hr.
[b] AP-42 Table 1.3-1. Assume max fuel sulfur content of 2.5% and 99.5% removal in ESP.
[c] AP-42 Table 1.3-5. Assume 86% of PM is PM10.
[d] AP-42 Table 1.3-1. Assume max fuel sulfur content of 2.5%.
[e] AP-42 Table 1.3-11.
[f] AP-42 Table 1.3-3. Assume max fuel sulfur content of 2.5%.
[g] NCASI TB #646 (DCE Rec. Furnace).
[h] NCASI TB #416.
[i] Average of last three stack tests.
[j] AP-42 Table 10.2-3 (NDCE Rec. Furnace) 74.8% of PM is PM10.
[k] Process and CEMS data.
[l] NCASI Environmental Resource Handbook - Chemical Recovery Processes.
[m] NCASI TB #884. Average factor used.
[n] NCASI TB #884. Table 4.11 (DCE Rec. Furnace). 75% of PM is PM10.
[o] In-house DCE engineering tests. Roy F. Weston, Inc.
[p] Factor provided by Buckeye Florida.
[q] Engineering stack test data x 1.15, February 1996. Roy F. Weston, Inc.
[r] Based on average of last three stack tests x 1.15.
[s] NCASI Technical Bulletin No. 94. 53% of PM is PM10.
[t] CEMS data.

TABLE A-8
REVISED EMISSION FACTORS USED TO DETERMINE ACTUAL ANNUAL EMISSIONS (1997-2006) FOR THE NO. 3 RECOVERY BOILER
BUCKEYE ENERGY PROJECT PROJECT, BUCKEYE FLORIDA

Source Description	EU ID	Annual Operation (hr/yr)	Annual Fuel Usage	Factor Units	Pollutant Emission Factors SO_2	NO_x	CO	PM	PM_{10}	$PM_{2.5}$	VOC	TRS	SAM	Lead	Mercury	Fluoride
No. 3 Recovery Boiler	007															
1997 Actual Emission Factors																
- ADUP		7,445	200,879 ton ADUP	lb/ton ADUP	3.44 [A]	1.64 [A]	1.82 [A]	0.67 [B]	0.52 [A]	0.36 [A]	0.32 [A]	3.7 [J,B]	0.15 [K]	3.1E-05 [I]	9.9E-08 [C]	--
- Residual Oil - 2.5% Suflur			681.35 $x10^3$ gal	$lb/10^3$ gal	392.5 [E]	47.0 [E]	5 [E]	0.13 [E]	0.08 [F]	0.05 [F]	0.28 [G]	--	17.27 [K]	1.5E-03 [H]	1.1E-04 [H]	3.7E-02 [H]
1998 Actual Emission Factors																
- ADUP		7,311	197,516 ton ADUP	lb/ton ADUP	3.44 [A]	1.64 [A]	1.82 [A]	0.67 [B]	0.51 [A]	0.36 [A]	0.32 [A]	4 [J,B]	0.15 [K]	3.1E-05 [I]	9.9E-08 [C]	--
- Residual Oil - 2.5% Suflur			857.33 $x10^3$ gal	$lb/10^3$ gal	392.5 [E]	47.0 [E]	5 [E]	0.13 [E]	0.08 [F]	0.05 [F]	0.28 [G]	--	17.27 [K]	1.5E-03 [H]	1.1E-04 [H]	3.7E-02 [H]
1999 Actual Emission Factors																
- ADUP		7,607	208,013 ton ADUP	lb/ton ADUP	3.44 [A]	1.64 [A]	1.82 [A]	0.61 [B]	0.47 [A]	0.33 [A]	0.32 [A]	3 [J,B]	0.15 [K]	3.1E-05 [I]	9.9E-08 [C]	--
- Residual Oil - 2.5% Suflur			456.41 $x10^3$ gal	$lb/10^3$ gal	392.5 [E]	47.0 [E]	5 [E]	0.13 [E]	0.08 [F]	0.05 [F]	0.28 [G]	--	17.27 [K]	1.5E-03 [H]	1.1E-04 [H]	3.7E-02 [H]
2000 Actual Emission Factors																
- ADUP		7,995	214,986 ton ADUP	lb/ton ADUP	3.44 [A]	1.64 [A]	1.82 [A]	0.43 [B]	0.33 [A]	0.23 [A]	0.32 [A]	0.124 [D]	0.15 [K]	3.1E-05 [I]	9.9E-08 [C]	--
- Residual Oil - 1.7% Suflur			425.44 $x10^3$ gal	$lb/10^3$ gal	266.9 [E]	47.0 [E]	5 [E]	0.09 [E]	0.06 [F]	0.04 [F]	0.28 [G]	--	11.74 [K]	1.5E-03 [H]	1.1E-04 [H]	3.7E-02 [H]
2001 Actual Emission Factors																
- ADUP		7,556	203,596 ton ADUP	lb/ton ADUP	3.44 [A]	1.64 [A]	1.82 [A]	0.28 [B]	0.21 [A]	0.15 [A]	0.32 [A]	0.112 [D]	0.15 [K]	3.1E-05 [I]	9.9E-08 [C]	--
- Residual Oil - 1.8% Suflur			1457.30 $x10^3$ gal	$lb/10^3$ gal	282.6 [E]	47.0 [E]	5 [E]	0.10 [E]	0.06 [F]	0.04 [F]	0.28 [G]	--	12.43 [K]	1.5E-03 [H]	1.1E-04 [H]	3.7E-02 [H]
2002 Actual Emission Factors																
- ADUP		7,974	215,394 ton ADUP	lb/ton ADUP	3.44 [A]	1.64 [A]	1.82 [A]	0.30 [B]	0.23 [A]	0.16 [A]	0.32 [A]	0.113 [D]	0.15 [K]	3.1E-05 [I]	9.9E-08 [C]	--
- Residual Oil - 1.9% Suflur			1258.50 $x10^3$ gal	$lb/10^3$ gal	298.3 [E]	47.0 [E]	5 [E]	0.10 [E]	0.07 [F]	0.04 [F]	0.28 [G]	--	13.13 [K]	1.5E-03 [H]	1.1E-04 [H]	3.7E-02 [H]
2003 Actual Emission Factors																
- ADUP		8,057	204,145 ton ADUP	lb/ton ADUP	3.44 [A]	1.64 [A]	1.82 [A]	0.28 [B]	0.22 [A]	0.15 [A]	0.32 [A]	0.113 [D]	0.15 [K]	3.1E-05 [I]	9.9E-08 [C]	--
- Residual Oil - 1.6% Suflur			1,718 $x10^3$ gal	$lb/10^3$ gal	251.2 [E]	47.0 [E]	5 [E]	0.09 [E]	0.06 [F]	0.04 [F]	0.28 [G]	--	11.05 [K]	1.5E-03 [H]	1.1E-04 [H]	3.7E-02 [H]
2004 Actual Emission Factors																
- ADUP		8,369	218,912 ton ADUP	lb/ton ADUP	3.44 [A]	1.64 [A]	1.82 [A]	0.28 [B]	0.22 [A]	0.15 [A]	0.32 [A]	0.112 [D]	0.15 [K]	3.1E-05 [I]	9.9E-08 [C]	--
- Residual Oil - 1.8% Suflur			1,621 $x10^3$ gal	$lb/10^3$ gal	282.6 [E]	47.0 [E]	5 [E]	0.10 [E]	0.06 [F]	0.04 [F]	0.28 [G]	--	12.43 [K]	1.5E-03 [H]	1.1E-04 [H]	3.7E-02 [H]
2005 Actual Emission Factors																
- ADUP		8,195	216,174 ton ADUP	lb/ton ADUP	3.44 [A]	1.64 [A]	1.82 [A]	0.34 [B]	0.26 [A]	0.18 [A]	0.32 [A]	0.111 [D]	0.15 [K]	3.1E-05 [I]	9.9E-08 [C]	--
- Residual Oil - 1.6% Suflur			896 $x10^3$ gal	$lb/10^3$ gal	251.2 [E]	47.0 [E]	5 [E]	0.09 [E]	0.06 [F]	0.04 [F]	0.28 [G]	--	11.05 [K]	1.5E-03 [H]	1.1E-04 [H]	3.7E-02 [H]
2006 Actual Emission Factors																
- ADUP		7,850	209,523 ton ADUP	lb/ton ADUP	3.44 [A]	1.64 [A]	1.82 [A]	0.38 [B]	0.29 [A]	0.20 [A]	0.32 [A]	0.101 [D]	0.15 [K]	3.1E-05 [I]	9.9E-08 [C]	--
- Residual Oil - 1.8% Suflur			1,173 $x10^3$ gal	$lb/10^3$ gal	282.6 [E]	47.0 [E]	5 [E]	0.10 [E]	0.06 [F]	0.04 [F]	0.28 [G]	--	12.43 [K]	1.5E-03 [H]	1.1E-04 [H]	3.7E-02 [H]

[A] NCASI Technical Bulletin No. 884, Table 4.11 (DCE Kraft Recovery Furnaces, median values). Assuming 1.5 ton BLS = 1 ton ADUP. 76.8% of PM is PM_{10}, 53.4% of PM is $PM_{2.5}$.
[B] Based on 5-year average stack tests (see Table A-11). Assuming 1.5 ton BLS = 1 ton ADUP.
[C] NCASI Technical Bulletin No. 858, Table 13B (DCE Recovery Furnaces, median values). Assuming 1.5 ton BLS = 1 ton ADUP.
[D] Process and CEMS data as reported in the AORs.
[E] AP-42, Table 1.3-1. Sulfur content reported in the AOR and assuming 99.5% removal of PM in ESP.
[F] AP-42, Table 1.3-4 for combustion of No. 6 fuel oil with ESP control. 63% of PM emissions are PM_{10}, 41% of PM emissions are $PM_{2.5}$.
[G] AP-42, Table 1.3-3.
[H] AP-42, Table 1.3-11. Based on uncontrolled emissions.
[I] Based on average of stack tests performed by Roy F. Weston, Inc. (8.6E-6 lb/ton ADUP and 5.4E-5 lb/ton ADUP).
[J] CEMS data as reported in the AORs.
[K] Based on similar derivation of sulfuric acid mist from AP-42 for fuel oil: 3.6% of SO_2 becomes SO_3 then take into account the ratio of sulfuric acid mist and sulfur trioxide molecular weights (98/80).

TABLE A-9
BASELINE ACTUAL ANNUAL (1997-2006) EMISSIONS FOR THE NO. 3 RECOVERY BOILER
BUCKEYE ENERGY PROJECT, BUCKEYE FLORIDA

Source Description	EU ID	Pollutant Emission Rate (TPY) SO_2	NO_x	CO	PM	PM_{10}	$PM_{2.5}$	VOC	TRS	SAM	Lead	Mercury	Fluoride
No. 3 Recovery Boiler	007												
1997 Actual Emissions													
- ADUP		345.01	164.22	182.30	67.50	51.84	36.05	31.64	13.77	15.18	3.14E-03	9.94E-06	--
- Residual Oil		133.71	16.01	1.70	0.04	0.03	0.02	0.10	--	5.88	5.14E-04	3.85E-05	0.013
- Total		***478.72***	***180.23***	***184.00***	***67.55***	***51.87***	***36.07***	***31.73***	***13.77***	***21.06***	***3.66E-03***	***4.84E-05***	***0.013***
1998 Actual Emissions													
- ADUP		339.23	161.47	179.25	65.67	50.44	35.07	31.11	14.62	14.93	3.09E-03	9.78E-06	--
- Residual Oil		168.25	20.15	2.14	0.06	0.04	0.02	0.12	--	7.40	6.47E-04	4.84E-05	0.016
- Total		***507.48***	***181.62***	***181.39***	***65.73***	***50.47***	***35.09***	***31.23***	***14.62***	***22.33***	***3.74E-03***	***5.82E-05***	***0.016***
1999 Actual Emissions													
- ADUP		357.26	170.05	188.77	63.48	48.75	33.90	32.76	11.41	15.72	3.26E-03	1.03E-05	--
- Residual Oil		89.57	10.73	1.14	0.03	0.02	0.01	0.06	--	3.94	3.45E-04	2.58E-05	0.009
- Total		***446.83***	***180.78***	***189.91***	***63.51***	***48.77***	***33.91***	***32.83***	***11.41***	***19.66***	***3.60E-03***	***3.61E-05***	***0.009***
2000 Actual Emissions													
- ADUP		369.24	175.75	195.10	46.37	35.61	24.76	33.86	13.33	16.25	3.36E-03	1.06E-05	--
- Residual Oil		56.77	10.00	1.06	0.02	0.01	0.01	0.06	--	2.50	3.21E-04	2.40E-05	0.008
- Total		***426.01***	***185.75***	***196.16***	***46.39***	***35.62***	***24.77***	***33.92***	***13.33***	***18.74***	***3.69E-03***	***3.47E-05***	***0.008***
2001 Actual Emissions													
- ADUP		349.68	166.44	184.76	28.39	21.80	15.16	32.07	11.40	15.39	3.19E-03	1.01E-05	--
- Residual Oil		205.92	34.25	3.64	0.07	0.05	0.03	0.20	--	9.06	1.10E-03	8.23E-05	0.027
- Total		***555.59***	***200.69***	***188.41***	***28.46***	***21.85***	***15.19***	***32.27***	***11.40***	***24.45***	***4.29E-03***	***9.24E-05***	***0.027***
2002 Actual Emissions													
- ADUP		369.94	176.08	195.47	32.38	24.87	17.29	33.92	12.17	16.28	3.37E-03	1.07E-05	--
- Residual Oil		187.71	29.57	3.15	0.07	0.04	0.03	0.18	--	8.26	9.50E-04	7.11E-05	0.023
- Total		***557.64***	***205.66***	***198.62***	***32.44***	***24.91***	***17.32***	***34.10***	***12.17***	***24.54***	***4.32E-03***	***8.18E-05***	***0.023***
2003 Actual Emissions													
- ADUP		350.62	166.89	185.26	28.97	22.25	15.47	32.15	11.53	15.43	3.19E-03	1.01E-05	--
- Residual Oil		215.77	40.37	4.29	0.08	0.05	0.03	0.24	--	9.49	1.30E-03	9.71E-05	0.032
- Total		***566.39***	***207.26***	***189.56***	***29.05***	***22.30***	***15.50***	***32.39***	***11.53***	***24.92***	***4.49E-03***	***1.07E-04***	***0.032***
2004 Actual Emissions													
- ADUP		375.98	178.96	198.66	30.80	23.66	16.45	34.48	12.26	16.54	3.43E-03	1.08E-05	--
- Residual Oil		229.10	38.10	4.05	0.08	0.05	0.03	0.23	--	10.08	1.22E-03	9.16E-05	0.030
- Total		***605.08***	***217.06***	***202.72***	***30.88***	***23.71***	***16.48***	***34.71***	***12.26***	***26.62***	***4.65E-03***	***1.02E-04***	***0.030***
2005 Actual Emissions													
- ADUP		371.28	176.72	196.18	36.76	28.23	19.63	34.05	12.00	16.34	3.38E-03	1.07E-05	--
- Residual Oil		112.57	21.06	2.24	0.04	0.03	0.02	0.13	--	4.95	6.77E-04	5.06E-05	0.017
- Total		***483.85***	***197.78***	***198.42***	***36.80***	***28.26***	***19.65***	***34.17***	***12.00***	***21.29***	***4.06E-03***	***6.13E-05***	***0.017***
2006 Actual Emissions													
- ADUP		359.86	171.29	190.14	39.39	30.25	21.03	33.00	10.58	15.83	3.28E-03	1.04E-05	--
- Residual Oil		165.76	27.57	2.93	0.06	0.04	0.02	0.16	--	7.29	8.86E-04	6.63E-05	0.022
- Total		***525.62***	***198.85***	***193.08***	***39.44***	***30.28***	***21.06***	***33.16***	***10.58***	***23.13***	***4.16E-03***	***7.67E-05***	***0.022***

TABLE A-10
SUMMARY OF BASELINE 2-YEAR AVERAGE ACTUAL EMISSIONS (1997-2006) FOR THE NO. 3 RECOVERY BOILER
BUCKEYE ENERGY PROJECT, BUCKEYE FLORIDA

Source Description	EU ID	Pollutant Emission Rate (TPY) SO_2	NO_x	CO	PM	PM_{10}	$PM_{2.5}$	VOC	TRS	SAM	Lead	Mercury	Fluoride
No. 3 Recovery Boiler	007												
1997 - 1998 Average Emissions													
- ADUP		342.12	162.84	180.77	66.59	51.14	35.56	31.37	14.20	15.05	3.12E-03	9.86E-06	--
- Residual Oil		150.98	18.08	1.92	0.05	0.03	0.02	0.11	--	6.64	5.81E-04	4.35E-05	0.014
- Total		***493.10***	***180.92***	***182.70***	***66.64***	***51.17***	***35.58***	***31.48***	***14.20***	***21.70***	***3.70E-03***	***5.33E-05***	***0.014***
1998 - 1999 Average Emissions													
- ADUP		348.25	165.76	184.01	64.58	49.59	34.48	31.94	13.02	15.32	3.17E-03	1.00E-05	--
- Residual Oil		128.91	15.44	1.64	0.04	0.03	0.02	0.09	--	5.67	4.96E-04	3.71E-05	0.012
- Total		***477.16***	***181.20***	***185.65***	***64.62***	***49.62***	***34.50***	***32.03***	***13.02***	***20.99***	***3.67E-03***	***4.71E-05***	***0.012***
1999 - 2000 Average Emissions													
- ADUP		363.25	172.90	191.94	54.92	42.18	29.33	33.31	12.37	15.98	3.31E-03	1.05E-05	--
- Residual Oil		73.17	10.36	1.10	0.02	0.02	0.01	0.06	--	3.22	3.33E-04	2.49E-05	0.008
- Total		***436.42***	***183.26***	***193.04***	***54.95***	***42.20***	***29.34***	***33.37***	***12.37***	***19.20***	***3.64E-03***	***3.54E-05***	***0.008***
2000 - 2001 Average Emissions													
- ADUP		359.46	171.10	189.93	37.38	28.71	19.96	32.96	12.37	15.82	3.28E-03	1.04E-05	--
- Residual Oil		131.35	22.12	2.35	0.05	0.03	0.02	0.13	--	5.78	7.11E-04	5.32E-05	0.018
- Total		***490.80***	***193.22***	***192.28***	***37.42***	***28.74***	***19.98***	***33.10***	***12.37***	***21.60***	***3.99E-03***	***6.35E-05***	***0.018***
2001 - 2002 Average Emissions													
- ADUP		359.81	171.26	190.12	30.39	23.34	16.23	33.00	11.79	15.83	3.28E-03	1.04E-05	--
- Residual Oil		196.81	31.91	3.39	0.07	0.04	0.03	0.19	--	8.66	1.03E-03	7.67E-05	0.025
- Total		***556.62***	***203.17***	***193.51***	***30.45***	***23.38***	***16.25***	***33.19***	***11.79***	***24.49***	***4.30E-03***	***8.71E-05***	***0.025***
2002 - 2003 Average Emissions													
- ADUP		360.28	171.49	190.37	30.68	23.56	16.38	33.04	11.85	15.85	3.28E-03	1.04E-05	--
- Residual Oil		201.74	34.97	3.72	0.07	0.04	0.03	0.21	--	8.88	1.12E-03	8.41E-05	0.028
- Total		***562.02***	***206.46***	***194.09***	***30.75***	***23.60***	***16.41***	***33.25***	***11.85***	***24.73***	***4.41E-03***	***9.45E-05***	***0.028***
2003 - 2004 Average Emissions													
- ADUP		363.30	172.92	191.96	29.89	22.95	15.96	33.32	11.90	15.99	3.31E-03	1.05E-05	--
- Residual Oil		222.43	39.24	4.17	0.08	0.05	0.03	0.23	--	9.79	1.26E-03	9.43E-05	0.031
- Total		***585.73***	***212.16***	***196.14***	***29.97***	***23.00***	***15.99***	***33.55***	***11.90***	***25.77***	***4.57E-03***	***1.05E-04***	***0.031***
2004 - 2005 Average Emissions													
- ADUP		373.63	177.84	197.42	33.78	25.94	18.04	34.26	12.13	16.44	3.40E-03	1.08E-05	--
- Residual Oil		170.83	29.58	3.15	0.06	0.04	0.02	0.18	--	7.52	9.50E-04	7.11E-05	0.023
- Total		***544.46***	***207.42***	***200.57***	***33.84***	***25.98***	***18.06***	***34.44***	***12.13***	***23.96***	***4.35E-03***	***8.19E-05***	***0.023***
2005 - 2006 Average Emissions													
- ADUP		365.57	174.00	193.16	38.07	29.24	20.33	33.52	11.29	16.08	3.33E-03	1.05E-05	--
- Residual Oil		139.16	24.31	2.59	0.05	0.03	0.02	0.14	--	6.12	7.81E-04	5.85E-05	0.019
- Total		***504.73***	***198.32***	***195.75***	***38.12***	***29.27***	***20.35***	***33.67***	***11.29***	***22.21***	***4.11E-03***	***6.90E-05***	***0.019***
		'03 - '04	**'03 - '04**	**'04 - '05**	**'97 - '98**	**'97 - '98**	**'97 - '98**	**'04 - '05**	**'97 - '98**	**'03 - '04**	**'03 - '04**	**'03 - '04**	**'03 - '04**
Highest Consecutive 2-Year Average		**585.73**	**212.16**	**200.57**	**66.64**	**51.17**	**35.58**	**34.44**	**14.20**	**25.77**	**4.57E-03**	**1.05E-04**	**0.031**

TABLE A-11
STACK TESTS AND EMISSIONS DATA FOR THE NO. 3 RECOVERY BOILER
BUCKEYE ENERGY PROJECT, BUCKEYE FLORIDA

	PM										TRS				
							5-year Average								
Test Date	Emission Rate [a] (lb/hr)	Emission Rate (gr/dscf @ 8% O_2) [b]	Emission Rate (corrected lb/hr) [b]	Process Rate (ton BLS/hr)	Emission Factor (lb/ton BLS) [c]	Averaging Period	Emission Rate (lb/hr) [d]	Emission Rate (gr/dscf) [e]	Process Rate (tons/hr BLS)	Emission Factor (lb/ton BLS)	Test Date	Emission Rate [f]	Operating Hours	Throughput (tons ADUP)	Converted Rate (lb/ton ADUP)
No. 3 Recovery Boiler (EU 007)															
2/17/1993	11.53	0.017	11.53	40.00	0.29										
3/7/1994	14.90	0.015	14.90	40.01	0.37										
3/9/1995	35.47	0.045	34.94	40.01	0.87										
3/12/1996	55.73	0.071	34.78	40.91	0.85										
12/10/1996	7.73	0.009	7.73	40.90	0.19										
11/4/1997	4.70	0.006	4.70	40.90	0.11	1993-1997	18.10	0.023	40.45	0.45					
11/12/1998	10.63	0.012	10.63	40.90	0.26	1994-1998	17.95	0.022	40.60	0.44	1997	3.7 lb/hr	7,445	200,879	0.137
11/4/1999	5.77	0.007	5.77	37.50	0.15	1995-1999	16.43	0.020	40.19	0.41	1998	4 lb/hr	7,311	197,516	0.148
11/8/2000	6.43	0.008	6.43	40.90	0.16	1996-2000	11.68	0.014	40.33	0.29	1999	3 lb/hr	7,607	208,013	0.110
11/7/2001	9.97	0.012	9.97	40.90	0.24	1997-2001	7.50	0.009	40.22	0.19	2000	0.124 lb/ton ADUP	--	--	0.124
11/6/2002	7.67	0.009	7.67	40.90	0.19	1998-2002	8.09	0.009	40.22	0.20	2001	0.112 lb/ton ADUP	--	--	0.112
10/22/2003	8.34	0.009	8.34	40.90	0.20	1999-2003	7.63	0.009	40.22	0.19	2002	0.113 lb/ton ADUP	--	--	0.113
3/30/2004	5.90	0.006	5.90	40.90	0.14	2000-2004	7.67	0.008	40.90	0.19	2003	0.113 lb/ton ADUP	--	--	0.113
10/7/2004	7.73	0.008	7.73	40.90	0.19						2004	0.112 lb/ton ADUP	--	--	0.112
10/27/2005	16.03	0.017	16.03	40.90	0.39	2001-2005	9.27	0.010	40.90	0.23	2005	0.111 lb/ton ADUP	--	--	0.111
10/4/2006	15.83	0.018	15.83	40.90	0.39	2002-2006	10.25	0.011	40.90	0.25	2006	0.101 lb/ton ADUP	--	--	0.101

[a] Maximum permitted PM emission rate is 3 lb/3,000 lbs BLS, or 82.35 lb/hr.

[b] Maximum permitted PM emission rate, as required by 40 CFR 63 Subpart MM, is 0.044 gr/dscf @ 8% O_2 after March 13, 2004. PM emission rates above 0.044 gr/dscf @ 8% O_2 have been reduced by the ratio of the 0.044 gr/dscf and the measured grain loading.

[c] Emisison factor in lb/ton BLS has been calculated using the corrected lb/hr PM emission rate.

[d] 5-year averages based on corrected lb/hr PM emission rate.

[e] Values for grain loading over 0.044 gr/dscf in the 5-year average have been corrected to reflect the requirements of 40 CFR 63 Subpart MM.

[f] Based on CEMS data as reported in the AORs.

NOTE:
The electrostatic precipitator was upgraded after the 3/12/1996 stack test.

TABLE A-12
BASELINE ACTUAL OPERATING CONDITIONS FOR THE NO. 3 RECOVERY BOILER
BUCKEYE ENERGY PROJECT, BUCKEYE FLORIDA

		Fuel Usage				2-Year Average			
Year	Operating Hours (hours/yr)	Equivalent ADUP (TPY) [a]	No. 6 Fuel Oil (10^3 gal/yr)	No. 6 Fuel Oil (% Sulfur)	2-Year Period	Plant Operation (hours/yr)	Equivalent ADUP (TPY) [a]	No. 6 Fuel Oil (10^3 gal/yr)	No. 6 Fuel Oil (% Sulfur)
No. 3 Recovery Boiler (EU 007)									
1997	7,445	200,879	681.4	2.5	--	--	--	--	--
1998	7,311	197,516	857.3	2.5	1997 - 1998	7,378	199,198	769.3	2.5
1999	7,607	208,013	456.4	2.5	1998 - 1999	7,459	202,765	656.9	2.5
2000	7,995	214,986	425.4	1.7	1999 - 2000	7,801	211,499	440.9	2.1
2001	7,556	203,596	1,457.3	1.8	2000 - 2001	7,776	209,291	941.4	1.8
2002	7,974	215,394	1,258.5	1.9	2001 - 2002	7,765	209,495	1,357.9	1.9
2003	8,057	204,145	1,717.9	1.6	2002 - 2003	8,016	209,769	1,488.2	1.8
2004	8,369	218,912	1,621.4	1.8	2003 - 2004	8,213	211,528	1,669.6	1.7
2005	8,195	216,174	896.3	1.6	2004 - 2005	8,282	217,543	1,258.8	1.7
2006	7,850	209,523	1,173.1	1.8	2005 - 2006	8,023	212,849	1,034.7	1.7
Maximum:	8,369	218,912	1,717.9	2.5		Maximum 2-Year Average Conditions			
Average:	7,836	208,914	1,054.5	2.0		'04-'05	'04-'05	'03-'04	'97-'99
Minimum:	7,311	197,516	425.4	1.6		8,282	217,543	1,669.6	2.5

[a] Equivalent pulp production based on 1.5 tons BLS = 1.0 tons ADUP.

TABLE A-13
BASELINE ACTUAL ANNUAL (1997-2006) EMISSION FACTORS FROM ANNUAL OPERATING REPORTS FOR THE NO. 1 POWER BOILER
BUCKEYE ENERGY PROJECT PROJECT, BUCKEYE FLORIDA

Source Description	EU ID	Annual Operation (hr/yr)	Annual Fuel Usage	Factor Units	Pollutant Emission Factors											
					SO_2	NO_x	CO	PM	PM_{10}	$PM_{2.5}$	VOC	TRS	SAM	Lead	Mercury	Fluoride
<u>No. 1 Power Boiler</u>	002															
1996 Actual Emission Factors																
- No. 6 Fuel Oil		5,909	179.83 x10^{3} gal	lb/10^{3} gal	392.5 ^{d}	55.0 ^{m}	5.0 ^{d}	28.0 ^{n}	24.1 ^{f}	--	0.28 ^{m}	--	--	0.0018 ^{p}	--	--
- Natural Gas			645.92 x10^{6} scf	lb/10^{6} scf	0.6 ^{b}	550.0 ^{m}	40.0 ^{m}	3.0 ^{m}	3.0 ^{o}	--	1.4 ^{m}	--	--	--	--	--
1997 Actual Emission Factors																
- No. 6 Fuel Oil		3,782	7.81 x10^{3} gal	lb/10^{3} gal	392.5 ^{d}	55.0 ^{m}	5.0 ^{d}	28.0 ^{n}	24.1 ^{f}	--	0.28 ^{m}	--	--	0.0018 ^{p}	--	--
- Natural Gas			412.99 x10^{6} scf	lb/10^{6} scf	0.6 ^{b}	550.0 ^{m}	40.0 ^{m}	3.0 ^{m}	3.0 ^{o}	--	1.4 ^{m}	--	--	--	--	--
1998 Actual Emission Factors																
- No. 6 Fuel Oil		6,408	218.62 x10^{3} gal	lb/10^{3} gal	392.5 ^{d}	55.0 ^{m}	5.0 ^{d}	28.0 ^{n}	24.1 ^{f}	--	0.28 ^{m}	--	--	0.0018 ^{p}	--	--
- Natural Gas			507.77 x10^{6} scf	lb/10^{6} scf	0.6 ^{b}	550.0 ^{m}	40.0 ^{m}	3.0 ^{m}	3.0 ^{o}	--	1.4 ^{m}	--	--	--	--	--
1999 Actual Emission Factors																
- No. 6 Fuel Oil		7,407	128.62 x10^{3} gal	lb/10^{3} gal	392.5 ^{d}	55.0 ^{m}	5.0 ^{d}	28.0 ^{n}	24.1 ^{f}	--	0.28 ^{m}	--	--	0.0018 ^{p}	--	--
- Natural Gas			522.47 x10^{6} scf	lb/10^{6} scf	0.6 ^{b}	550.0 ^{m}	40.0 ^{m}	3.0 ^{m}	3.0 ^{o}	--	1.4 ^{m}	--	--	--	--	--
2000 Actual Emission Factors																
- No. 6 Fuel Oil		8,688	264.26 x10^{3} gal	lb/10^{3} gal	392.5 ^{d}	47.0 ^{d}	5.0 ^{d}	26.2 ^{d}	24.1 ^{f}	--	0.28 ^{e}	--	--	0.00151 ^{g}	--	--
- Natural Gas			434.64 x10^{6} scf	lb/10^{6} scf	0.6 ^{b}	280.0 ^{a}	84.0 ^{a}	7.6 ^{b}	7.6 ^{c}	--	5.5 ^{b}	--	--	0.0005 ^{b}	--	--
2001 Actual Emission Factors																
- No. 6 Fuel Oil		5,576	2688.11 x10^{3} gal	lb/10^{3} gal	392.5 ^{d}	47.0 ^{d}	5.0 ^{d}	26.2 ^{d}	24.1 ^{f}	--	-- ^{j}	--	--	-- ^{j}	--	--
- Natural Gas			158.83 x10^{6} scf	lb/10^{6} scf	0.6 ^{b}	280.0 ^{a}	84.0 ^{a}	7.6 ^{b}	-- ^{j}	--	-- ^{j}	--	--	-- ^{j}	--	--
2002 Actual Emission Factors																
- No. 6 Fuel Oil		6,197	2,251.73 x10^{3} gal	lb/10^{3} gal	392.5 ^{d}	47.0 ^{d}	5.0 ^{d}	26.2 ^{d}	24.1 ^{f}	--	-- ^{j}	--	--	-- ^{j}	--	--
- Natural Gas			279.74 x10^{6} scf	lb/10^{6} scf	0.6 ^{b}	280.0 ^{a}	84.0 ^{a}	7.6 ^{b}	-- ^{j}	--	-- ^{j}	--	--	-- ^{j}	--	--
- TRS Burning			28,006 ton ADUP	lb/hr	51.1 ^{l}	--	--	--	--	--	--	0.37 ^{k}	--	--	--	--
- Backup Combustion Mode for NC		292	na na	lb/hr	51.7	--	--	--	--	--	--	1.82	--	--	--	--
2003 Actual Emission Factors																
- No. 6 Fuel Oil		6,668	3,909.84 x10^{3} gal	lb/10^{3} gal	392.5 ^{d}	47.0 ^{d}	5.0 ^{d}	26.2 ^{d}	24.1 ^{f}	--	-- ^{j}	--	--	-- ^{j}	--	--
- Natural Gas			71.12 x10^{6} scf	lb/10^{6} scf	0.6 ^{b}	280.0 ^{a}	84.0 ^{a}	7.6 ^{b}	-- ^{j}	--	-- ^{j}	--	--	-- ^{j}	--	--
- TRS Burning			36,169 ton ADUP	lb/ton ADUP	1.3 ^{h}	--	--	--	--	--	--	0.002 ^{i}	--	--	--	--
2004 Actual Emission Factors																
- No. 6 Fuel Oil		7,439	4,152.44 x10^{3} gal	lb/10^{3} gal	392.5 ^{d}	47.0 ^{d}	5.0 ^{d}	26.2 ^{d}	24.1 ^{f}	--	-- ^{j}	--	--	-- ^{j}	--	--
- Natural Gas			19.76 x10^{6} scf	lb/10^{6} scf	0.6 ^{b}	-- ^{j}	-- ^{j}	7.6 ^{b}	-- ^{j}	--	-- ^{j}	--	--	-- ^{j}	--	--
- TRS Burning			47,550 ton ADUP	lb/ton ADUP	1.3 ^{h}	--	--	--	--	--	--	0.002 ^{i}	--	--	--	--
2005 Actual Emission Factors																
- No. 6 Fuel Oil		8,012	4,657.66 x10^{3} gal	lb/10^{3} gal	392.5 ^{d}	47.0 ^{d}	5.0 ^{d}	26.2 ^{d}	24.1 ^{f}	--	-- ^{j}	--	--	-- ^{j}	--	--
- Natural Gas			31.28 x10^{6} scf	lb/10^{6} scf	0.6 ^{b}	-- ^{j}	-- ^{j}	7.6 ^{b}	-- ^{j}	--	-- ^{j}	--	--	-- ^{j}	--	--
- TRS Burning			20,270 ton ADUP	lb/ton ADUP	1.3 ^{h}	--	--	--	--	--	--	0.002 ^{i}	--	--	--	--
2006 Actual Emission Factors																
- No. 6 Fuel Oil		6,853	2,392 x10^{3} gal	lb/10^{3} gal	392.5 ^{d}	47.0 ^{d}	5.0 ^{d}	26.2 ^{d}	24.1 ^{f}	--	0.28 ^{e}	--	--	-- ^{j}	--	--
- Natural Gas			234.03 x10^{6} scf	lb/10^{6} scf	0.6 ^{b}	280.0 ^{a}	84.0 ^{a}	7.6 ^{b}	7.6 ^{c}	--	5.5 ^{b}	--	--	-- ^{j}	--	--
- TRS Burning			34,172 ton ADUP	lb/ton ADUP	1.3 ^{h}	--	--	--	--	--	--	0.002 ^{i}	--	--	--	--
- Liquid Waste			42 x10^{3} gal	lb/10^{3} gal	--	--	--	--	--	--	--	--	--	--	--	--

[a] AP-42 Table 1.4-1
[b] AP-42 Table 1.4-2
[c] AP-42 Table 1.4-2. Assume 100% of PM is PM_{10}.
[d] AP-42 Table 1.3-1. Assume max sulfur content of 2.5%.
[e] AP-42 Table 1.3-3. Assume max sulfur content of 2.5%.
[f] AP-42 Table 1.3-3. Assume 86% of PM is PM_{10}.
[g] AP-42 Table 1.3-11.
[h] Based on 50% removal in pre-scrubber and assuming 70% of TRS is sulfur (AC Permit Application, Table 3-1).
[i] Based on assuming 99.9% destruction (original TRS project AC Permit Application indicated 99.99% at 1,200°F and 0.5 second residence time).
[j] Below threshold so not reported in AOR.
[k] Assumed 99% destruction. Maximum uncontrolled TRS emissions from Permit Application (Permit No. 1230001-011-AC) is 369.3 lb/hr before the pre-scrubber. TRS NCG Pre-scrubber is designed for 90% removal of H_2S and Methyl Mercaptan 369.3 x 0.9 = 332.4 pounds removed. Net uncontrolled emissions of 36.9 lb/hr TRS as combusted with 99% destruction or 36.53 lb/hr TRS converted to SO_2.
[l] Based on permit application. See footnote "k". 36.53 lb/hr TRS @ 70% S: 36.53 x 0.70 = 25.57 x 64 lbs SO2/32 lbs H2S = 51.14 lb/hr SO_2.
[m] AP-42.
[n] AP-42. Assume max sulfur content of 2.5%.
[o] Assume 100% of PM is PM_{10}.
[p] NCASI Technical Bulletin #650.

TABLE A-14
REVISED EMISSION FACTORS USED TO DETERMINE ACTUAL ANNUAL EMISSIONS (1997-2006) FOR THE NO. 1 POWER BOILER
BUCKEYE ENERGY PROJECT PROJECT, BUCKEYE FLORIDA

Source Description	EU ID	Annual Operation (hr/yr)	Annual Fuel Usage	Factor Units	Pollutant Emission Factors											
					SO_2	NO_x	CO	PM	PM_{10}	$PM_{2.5}$	VOC	TRS	SAM	Lead	Mercury	Fluoride
No. 1 Power Boiler	002															
1997 Actual Emission Factors																
- No. 6 Fuel Oil - 2.5% Sulfur		3,782	7.81 x10^3 gal	lb/10^3 gal	392.5 [A]	47.0 [A]	5.0 [A]	26.20 [A]	22.53 [B]	14.67 [B]	0.28 [C]	--	17.27 [M]	0.0015 [D]	1.1E-04 [D]	3.7E-02 [D]
- Natural Gas			412.99 x10^6 scf	lb/10^6 scf	0.6 [F]	280.0 [E]	84.0 [E]	7.6 [F]	7.6 [H]	7.6 [H]	5.5 [F]	--	--	0.0005 [F]	2.6E-04 [G]	--
1998 Actual Emission Factors																
- No. 6 Fuel Oil - 2.5% Sulfur		6,408	218.62 x10^3 gal	lb/10^3 gal	392.5 [A]	47.0 [A]	5.0 [A]	26.20 [A]	22.53 [B]	14.67 [B]	0.28 [C]	--	17.27 [M]	0.0015 [D]	1.1E-04 [D]	3.7E-02 [D]
- Natural Gas			507.77 x10^6 scf	lb/10^6 scf	0.6 [F]	280.0 [E]	84.0 [E]	7.6 [F]	7.6 [H]	7.6 [H]	5.5 [F]	--	--	0.0005 [F]	2.6E-04 [G]	--
1999 Actual Emission Factors																
- No. 6 Fuel Oil - 2.5% Sulfur		7,407	128.62 x10^3 gal	lb/10^3 gal	392.5 [A]	47.0 [A]	5.0 [A]	26.20 [A]	22.53 [B]	14.67 [B]	0.28 [C]	--	17.27 [M]	0.0015 [D]	1.1E-04 [D]	3.7E-02 [D]
- Natural Gas			522.47 x10^6 scf	lb/10^6 scf	0.6 [F]	280.0 [E]	84.0 [E]	7.6 [F]	7.6 [H]	7.6 [H]	5.5 [F]	--	--	0.0005 [F]	2.6E-04 [G]	--
2000 Actual Emission Factors																
- No. 6 Fuel Oil - 1.7% Sulfur		8,688	264.26 x10^3 gal	lb/10^3 gal	266.9 [A]	47.0 [A]	5.0 [A]	18.84 [A]	16.20 [B]	10.55 [B]	0.28 [C]	--	11.74 [M]	0.0015 [D]	1.1E-04 [D]	3.7E-02 [D]
- Natural Gas			434.64 x10^6 scf	lb/10^6 scf	0.6 [F]	280.0 [E]	84.0 [E]	7.6 [F]	7.6 [H]	7.6 [H]	5.5 [F]	--	--	0.0005 [F]	2.6E-04 [G]	--
2001 Actual Emission Factors																
- No. 6 Fuel Oil - 1.8% Sulfur		5,576	2688.11 x10^3 gal	lb/10^3 gal	282.6 [A]	47.0 [A]	5.0 [A]	19.76 [A]	17.00 [B]	11.07 [B]	0.28 [C]	--	12.43 [M]	0.0015 [D]	1.1E-04 [D]	3.7E-02 [D]
- Natural Gas			158.83 x10^6 scf	lb/10^6 scf	0.6 [F]	280.0 [E]	84.0 [E]	7.6 [F]	7.6 [H]	7.6 [H]	5.5 [F]	--	--	0.0005 [F]	2.6E-04 [G]	--
2002 Actual Emission Factors																
- No. 6 Fuel Oil - 1.9% Sulfur		6,197	2,251.73 x10^3 gal	lb/10^3 gal	298.3 [A]	47.0 [A]	5.0 [A]	20.68 [A]	17.79 [D]	11.58 [B]	0.28 [C]	--	13.13 [M]	0.0015 [D]	1.1E-04 [D]	3.7E-02 [D]
- Natural Gas			279.74 x10^6 scf	lb/10^6 scf	0.6 [F]	280.0 [E]	84.0 [E]	7.6 [F]	7.6 [H]	7.6 [H]	5.5 [F]	--	--	0.0005 [F]	2.6E-04 [G]	--
- TRS Burning		292	28,006 ton ADUP	lb/hr	51.1 [L]	--	--	--	--	--	--	0.37 [J]	2.25 [M]	--	--	--
2003 Actual Emission Factors																
- No. 6 Fuel Oil - 1.6% Sulfur		6,668	3,909.84 x10^3 gal	lb/10^3 gal	251.2 [A]	47.0 [A]	5.0 [A]	17.92 [A]	15.41 [B]	10.04 [B]	0.28 [C]	--	11.05 [M]	0.0015 [D]	1.1E-04 [D]	3.7E-02 [D]
- Natural Gas			71.12 x10^6 scf	lb/10^6 scf	0.6 [F]	280.0 [E]	84.0 [E]	7.6 [F]	7.6 [H]	7.6 [H]	5.5 [F]	--	--	0.0005 [F]	2.6E-04 [G]	--
- TRS Burning			36,169 ton ADUP	lb/ton ADUP	1.3 [K]	--	--	--	--	--	--	0.002 [I]	0.06 [M]	--	--	--
2004 Actual Emission Factors																
- No. 6 Fuel Oil - 1.8% Sulfur		7,439	4,152.44 x10^3 gal	lb/10^3 gal	282.6 [A]	47.0 [A]	5.0 [A]	19.76 [A]	17.00 [B]	11.07 [B]	0.28 [C]	--	12.43 [M]	0.0015 [D]	1.1E-04 [D]	3.7E-02 [D]
- Natural Gas			19.76 x10^6 scf	lb/10^6 scf	0.6 [F]	280.0 [E]	84.0 [E]	7.6 [F]	7.6 [H]	7.6 [H]	5.5 [F]	--	--	0.0005 [F]	2.6E-04 [G]	--
- TRS Burning			47,550 ton ADUP	lb/ton ADUP	1.3 [K]	--	--	--	--	--	--	0.002 [I]	0.06 [M]	--	--	--
2005 Actual Emission Factors																
- No. 6 Fuel Oil - 1.6% Sulfur		8,012	4,657.66 x10^3 gal	lb/10^3 gal	251.2 [A]	47.0 [A]	5.0 [A]	17.92 [A]	15.41 [B]	10.04 [B]	0.28 [C]	--	11.05 [M]	0.0015 [D]	1.1E-04 [D]	3.7E-02 [D]
- Natural Gas			31.28 x10^6 scf	lb/10^6 scf	0.6 [F]	280.0 [E]	84.0 [E]	7.6 [F]	7.6 [H]	7.6 [H]	5.5 [F]	--	--	0.0005 [F]	2.6E-04 [G]	--
- TRS Burning			20,270 ton ADUP	lb/ton ADUP	1.3 [K]	--	--	--	--	--	--	0.002 [I]	0.06 [M]	--	--	--
2006 Actual Emission Factors																
- No. 6 Fuel Oil - 1.8% Sulfur		6,853	2,391.60 x10^3 gal	lb/10^3 gal	282.6 [A]	47.0 [A]	5.0 [A]	19.76 [A]	17.00 [D]	11.07 [B]	0.28 [C]	--	12.43 [M]	0.0015 [D]	1.1E-04 [D]	3.7E-02 [D]
- Natural Gas			234.03 x10^6 scf	lb/10^6 scf	0.6 [F]	280.0 [E]	84.0 [E]	7.6 [F]	7.6 [H]	7.6 [H]	5.5 [F]	--	--	0.0005 [F]	2.6E-04 [G]	--
- TRS Burning			34,172 ton ADUP	lb/ton ADUP	1.3 [K]	--	--	--	--	--	--	0.002 [I]	0.06 [M]	--	--	--

[A] AP-42, Table 1.3-1. Sulfur content reported in the AOR.

[B] AP-42, Table 1.3-4, uncontrolled combustion of No. 6 fuel oil. 86% of PM emissions are PM_{10}, 56% of PM emissions are $PM_{2.5}$.

[C] AP-42 Table 1.3-3.

[D] AP-42 Table 1.3-11.

[E] AP-42 Table 1.4-1.

[F] AP-42 Table 1.4-2.

[G] AP-42 Table 1.4-4.

[H] AP-42 Table 1.4-2. 100% of PM is PM_{10} or $PM_{2.5}$.

[I] Based on assuming 99.9% destruction (original TRS project AC Permit Application indicated 99.99% at 1,200 degrees F and 0.5 second residence time).

[J] Assumed 99% destruction. Maximum uncontrolled TRS emissions from Permit Application (Permit No. 1230001-011-AC) is 369.3 lb/hr before the pre-scrubber. TRS NCG Pre-scrubber is designed for 90% removal of H_2S and Methyl Mercaptan 369.3 x 0.9 = 332.4 pounds removed. Net uncontrolled emissions of 36.9 lb/hr TRS as combusted with 99% destruction or 36.53 lb/hr TRS converted to SO_2.

[K] Based on 50% removal in pre-scrubber and assuming 70% of TRS is sulfur (AC Permit Application, Table 3-1).

[L] Based on permit application. See footnote "K". 36.53 lb/hr TRS @ 70% S: 36.53 x 0.70 = 25.57 x 64 lbs SO_2/32 lbs H2S = 51.14 lb/hr SO_2.

[M] Based on similar derivation of sulfuric acid mist from AP-42 for fuel oil: 3.6% of SO_2 becomes SO_3 then take into account the ratio of sulfuric acid mist and sulfur trioxide molecular weights (98/80).

TABLE A-15
BASELINE ACTUAL ANNUAL (1997-2006) EMISSIONS FOR THE NO. 1 POWER BOILER
BUCKEYE ENERGY PROJECT, BUCKEYE FLORIDA

Source Description	EU ID	Pollutant Emission Rate (TPY)											
		SO_2	NO_x	CO	PM	PM_{10}	$PM_{2.5}$	VOC	TRS	SAM	Lead	Mercury	Fluoride
No. 1 Power Boiler	002												
1997 Actual Emissions													
- Residual Oil		1.53	0.18	0.02	0.10	0.09	0.06	0.00	--	0.07	5.90E-06	4.41E-07	1.46E-04
- Natural Gas		0.12	57.82	17.35	1.57	1.57	1.57	1.14	--	--	1.03E-04	5.37E-05	--
- Total w/out TRS burning		***1.66***	***58.00***	***17.36***	***1.67***	***1.66***	***1.63***	***1.14***	--	***0.07***	***1.09E-04***	***5.41E-05***	***1.46E-04***
1998 Actual Emissions													
- Residual Oil		42.90	5.14	0.55	2.86	2.46	1.60	0.03	--	1.89	1.65E-04	1.24E-05	4.08E-03
- Natural Gas		0.15	71.09	21.33	1.93	1.93	1.93	1.40	--	--	1.27E-04	6.60E-05	--
- Total w/out TRS burning		***43.06***	***76.23***	***21.87***	***4.79***	***4.39***	***3.53***	***1.43***	--	***1.89***	***2.92E-04***	***7.84E-05***	***4.08E-03***
1999 Actual Emissions													
- Residual Oil		25.24	3.02	0.32	1.68	1.45	0.94	0.02	--	1.11	9.71E-05	7.27E-06	2.40E-03
- Natural Gas		0.16	73.15	21.94	1.99	1.99	1.99	1.44	--	--	1.31E-04	6.79E-05	--
- Total w/out TRS burning		***25.40***	***76.17***	***22.27***	***3.67***	***3.43***	***2.93***	***1.45***	--	***1.11***	***2.28E-04***	***7.52E-05***	***2.40E-03***
2000 Actual Emissions													
- Residual Oil		35.27	6.21	0.66	2.49	2.14	1.39	0.04	--	1.55	2.00E-04	1.49E-05	4.93E-03
- Natural Gas		0.13	60.85	18.25	1.65	1.65	1.65	1.20	--	--	1.09E-04	5.65E-05	--
- Total w/out TRS burning		***35.40***	***67.06***	***18.92***	***4.14***	***3.79***	***3.05***	***1.23***	--	***1.55***	***3.08E-04***	***7.14E-05***	***4.93E-03***
2001 Actual Emissions													
- Residual Oil		379.83	63.17	6.72	26.56	22.84	14.87	0.38	--	16.71	2.03E-03	1.52E-04	5.01E-02
- Natural Gas		0.05	22.24	6.67	0.60	0.60	0.60	0.44	--	--	3.97E-05	2.06E-05	--
- Total w/out TRS burning		***379.88***	***85.41***	***13.39***	***27.16***	***23.45***	***15.48***	***0.81***	--	***16.71***	***2.07E-03***	***1.73E-04***	***5.01E-02***
2002 Actual Emissions													
- Residual Oil		335.85	52.92	5.63	23.28	20.02	13.04	0.32	--	14.78	1.70E-03	1.27E-04	4.20E-02
- Natural Gas		0.08	39.16	11.75	1.06	1.06	1.06	0.77	--	--	6.99E-05	3.64E-05	--
- TRS Burning		7.47	--	--	--	--	--	--	0.05	0.33	--	--	--
- Total w/out TRS burning		***335.93***	***92.08***	***17.38***	***24.35***	***21.09***	***14.10***	***1.08***	--	***14.78***	***1.77E-03***	***1.64E-04***	***4.20E-02***
2003 Actual Emissions													
- Residual Oil		491.08	91.88	9.77	35.04	30.13	19.62	0.55	--	21.61	2.95E-03	2.21E-04	7.29E-02
- Natural Gas		0.02	9.96	2.99	0.27	0.27	0.27	0.20	--	--	1.78E-05	9.25E-06	--
- TRS Burning		23.51	--	--	--	--	--	--	0.04	1.03	--	--	--
- Total w/out TRS burning		***491.10***	***101.84***	***12.76***	***35.31***	***30.40***	***19.89***	***0.74***	--	***21.61***	***2.97E-03***	***2.30E-04***	***7.29E-02***
2004 Actual Emissions													
- Residual Oil		586.74	97.58	10.38	41.03	35.29	22.98	0.58	--	25.82	3.14E-03	2.35E-04	7.74E-02
- Natural Gas		0.01	2.77	0.83	0.08	0.08	0.08	0.05	--	--	4.94E-06	2.57E-06	--
- TRS Burning		30.91	--	--	--	--	--	--	0.05	1.36	--	--	--
- Total w/out TRS burning		***586.75***	***100.35***	***11.21***	***41.11***	***35.36***	***23.05***	***0.64***	--	***25.82***	***3.14E-03***	***2.37E-04***	***7.74E-02***
2005 Actual Emissions													
- Residual Oil		585.00	109.46	11.64	41.74	35.90	23.38	0.65	--	25.74	3.52E-03	2.63E-04	8.69E-02
- Natural Gas		0.01	4.38	1.31	0.12	0.12	0.12	0.09	--	--	7.82E-06	4.07E-06	--
- TRS Burning		13.18	--	--	--	--	--	--	0.02	0.58	--	--	--
- Total w/out TRS burning		***585.01***	***113.83***	***12.96***	***41.86***	***36.02***	***23.49***	***0.74***	--	***25.74***	***3.52E-03***	***2.67E-04***	***8.69E-02***
2006 Actual Emissions													
- Residual Oil		337.93	56.20	5.98	23.63	20.32	13.23	0.33	--	14.87	1.81E-03	1.35E-04	4.46E-02
- Natural Gas		0.07	32.76	9.83	0.89	0.89	0.89	0.64	--	--	5.85E-05	3.04E-05	--
- TRS Burning		22.21	--	--	--	--	--	--	0.03	0.98	--	--	--
- Total w/out TRS burning		***338.00***	***88.97***	***15.81***	***24.52***	***21.21***	***14.12***	***0.98***	--	***14.87***	***1.86E-03***	***1.66E-04***	***4.46E-02***

TABLE A-16
SUMMARY OF BASELINE 2-YEAR AVERAGE ACTUAL EMISSIONS (1997-2006) FOR THE NO. 1 POWER BOILER
BUCKEYE ENERGY PROJECT, BUCKEYE FLORIDA

Source Description	EU ID	Pollutant Emission Rate (TPY)											
		SO_2	NO_x	CO	PM	PM_{10}	$PM_{2.5}$	VOC	TRS	SAM	Lead	Mercury	Fluoride
No. 1 Power Boiler	**002**												
1997 - 1998 Average Emissions													
- Residual Oil		22.22	2.66	0.28	1.48	1.28	0.83	0.02	--	0.98	8.55E-05	6.40E-06	0.002
- Natural Gas		0.14	64.45	19.34	1.75	1.75	1.75	1.27	--	--	1.15E-04	5.98E-05	--
- TRS Burning		--	--	--	--	--	--	--	--	--	--	--	--
- Total w/out TRS burning		***22.36***	***67.11***	***19.62***	***3.23***	***3.02***	***2.58***	***1.28***	–	***0.98***	***2.01E-04***	***6.62E-05***	***0.002***
1998 - 1999 Average Emissions													
- Residual Oil		34.07	4.08	0.43	2.27	1.96	1.27	0.02	--	1.50	1.31E-04	9.81E-06	0.003
- Natural Gas		0.15	72.12	21.63	1.96	1.96	1.96	1.42	--	--	1.29E-04	6.70E-05	--
- TRS Burning		--	--	--	--	--	--	--	--	--	--	--	--
- Total w/out TRS burning		***34.23***	***76.20***	***22.07***	***4.23***	***3.91***	***3.23***	***1.44***	–	***1.50***	***2.60E-04***	***7.68E-05***	***0.003***
1999 - 2000 Average Emissions													
- Residual Oil		30.25	4.62	0.49	2.09	1.79	1.17	0.03	--	1.33	1.48E-04	1.11E-05	0.004
- Natural Gas		0.14	67.00	20.10	1.82	1.82	1.82	1.32	--	--	1.20E-04	6.22E-05	--
- TRS Burning		--	--	--	--	--	--	--	--	--	--	--	--
- Total w/out TRS burning		***30.40***	***71.61***	***20.59***	***3.91***	***3.61***	***2.99***	***1.34***	–	***1.33***	***2.68E-04***	***7.33E-05***	***0.004***
2000 - 2001 Average Emissions													
- Residual Oil		207.55	34.69	3.69	14.53	12.49	8.13	0.21	--	9.13	1.11E-03	8.34E-05	0.028
- Natural Gas		0.09	41.54	12.46	1.13	1.13	1.13	0.82	--	--	7.42E-05	3.86E-05	--
- TRS Burning		--	--	--	--	--	--	--	--	--	--	--	--
- Total w/out TRS burning		***207.64***	***76.23***	***16.15***	***15.65***	***13.62***	***9.26***	***1.02***	–	***9.13***	***1.19E-03***	***1.22E-04***	***0.028***
2001 - 2002 Average Emissions													
- Residual Oil		357.84	58.04	6.17	24.92	21.43	13.96	0.35	--	15.74	1.86E-03	1.40E-04	0.046
- Natural Gas		0.07	30.70	9.21	0.83	0.83	0.83	0.60	--	--	5.48E-05	2.85E-05	--
- TRS Burning		7.47	--	--	--	--	--	--	0.05	0.33	--	--	--
- Total w/out TRS burning		***357.90***	***88.74***	***15.38***	***25.76***	***22.27***	***14.79***	***0.95***	–	***15.74***	***1.92E-03***	***1.68E-04***	***0.046***
2002 - 2003 Average Emissions													
- Residual Oil		413.46	72.40	7.70	29.16	25.08	16.33	0.43	--	18.19	2.33E-03	1.74E-04	0.057
- Natural Gas		0.05	24.56	7.37	0.67	0.67	0.67	0.48	--	--	4.39E-05	2.28E-05	--
- TRS Burning		15.49	--	--	--	--	--	--	0.05	0.68	--	--	--
- Total w/out TRS burning		***413.51***	***96.96***	***15.07***	***29.83***	***25.75***	***17.00***	***0.91***	–	***18.19***	***2.37E-03***	***1.97E-04***	***0.057***
2003 - 2004 Average Emissions													
- Residual Oil		538.91	94.73	10.08	38.04	32.71	21.30	0.56	--	23.71	3.04E-03	2.28E-04	0.075
- Natural Gas		0.01	6.36	1.91	0.17	0.17	0.17	0.12	--	--	1.14E-05	5.91E-06	--
- TRS Burning		27.21	--	--	--	--	--	--	0.04	1.20	--	--	--
- Total w/out TRS burning		***538.92***	***101.09***	***11.99***	***38.21***	***32.88***	***21.47***	***0.69***	–	***23.71***	***3.05E-03***	***2.34E-04***	***0.075***
2004 - 2005 Average Emissions													
- Residual Oil		585.87	103.52	11.01	41.39	35.59	23.18	0.62	--	25.78	3.33E-03	2.49E-04	0.082
- Natural Gas		0.01	3.57	1.07	0.10	0.10	0.10	0.07	--	--	6.38E-06	3.32E-06	--
- TRS Burning		22.04	--	--	--	--	--	--	0.03	0.97	--	--	--
- Total w/out TRS burning		***585.88***	***107.09***	***12.08***	***41.48***	***35.69***	***23.27***	***0.69***	–	***25.78***	***3.33E-03***	***2.52E-04***	***0.082***
2005 - 2006 Average Emissions													
- Residual Oil		461.47	82.83	8.81	32.69	28.11	18.30	0.49	--	20.30	2.66E-03	1.99E-04	0.066
- Natural Gas		0.04	18.57	5.57	0.50	0.50	0.50	0.36	--	--	3.32E-05	1.72E-05	--
- TRS Burning		17.69	--	--	--	--	--	--	0.03	0.78	--	--	--
- Total w/out TRS burning		***461.51***	***101.40***	***14.38***	***33.19***	***28.61***	***18.81***	***0.86***	–	***20.30***	***2.69E-03***	***2.16E-04***	***0.066***
		'04 - '05	'04 - '05	'98 - '99	'04 - '05	'04 - '05	'04 - '05	'98 - '99	--	'04 - '05	'04 - '05	'04 - '05	'04 - '05
Highest Consecutive 2-Year Average		585.88	107.09	22.07	41.48	35.69	23.27	1.44	–	25.78	3.33E-03	2.52E-04	0.082

TABLE A-17
BASELINE ACTUAL OPERATING CONDITIONS FOR THE NO. 1 POWER BOILER
BUCKEYE ENERGY PROJECT, BUCKEYE FLORIDA

		Fuel Usage					
					Heat Input [a]		
Year	Operating Hours (hours/yr)	No. 6 Fuel Oil (10^3 gal/yr)	No. 6 Fuel Oil (% Sulfur)	Natural Gas (10^6 ft^3/yr)	No. 6 Fuel Oil (MMBtu/yr)	Natural Gas (MMBtu/yr)	Total (MMBtu/yr)
No. 1 Power Boiler (EU 002)							
1997	3,782	7.8	2.5	413.0	1,140	412,986	414,126
1998	6,408	218.6	2.5	507.8	31,918	507,769	539,687
1999	7,407	128.6	2.5	522.5	18,778	522,467	541,245
2000	8,688	264.3	1.7	434.6	38,582	434,640	473,222
2001	5,576	2,688.1	1.8	158.8	392,464	158,830	551,294
2002	6,197	2,251.7	1.9	279.7	328,753	279,740	608,493
2003	6,668	3,909.8	1.6	71.1	570,837	71,120	641,957
2004	7,439	4,152.4	1.8	19.8	606,256	19,760	626,016
2005	8,012	4,657.7	1.6	31.3	680,018	31,280	711,298
2006	6,853	2,391.6	1.8	234.0	349,174	234,030	583,204
Maximum:	8,688	4,657.7	2.5	522.5	680,018	522,467	711,298
Average:	6,703	2,067.1	2.0	267.3	301,792	267,262	569,054
Minimum:	3,782	7.8	1.6	19.8	1,140	19,760	414,126

[a] Heat input values based on 146 MMBtu/10^3 gal for No. 6 Fuel Oil, and 1,000 MMBtu/10^6 ft^3 for Natural Gas.

TABLE A-18
BASELINE ACTUAL ANNUAL (1997-2006) EMISSION FACTORS FROM ANNUAL OPERATING REPORTS FOR THE NO. 2 POWER BOILER
BUCKEYE ENERGY PROJECT PROJECT, BUCKEYE FLORIDA

Source Description	EU ID	Annual Operation (hr/yr)	Annual Fuel Usage	Factor Units	Pollutant Emission Factors SO_2	NO_x	CO	PM	PM_{10}	$PM_{2.5}$	VOC	TRS	SAM	Lead	Mercury	Fluoride
No. 2 Power Boiler	003															
1996 Actual Emission Factors																
- *No. 6 Fuel Oil*		4,626	240.95 x10^3 gal	lb/10^3 gal	392.5 [n]	55.0 [m]	5.0 [m]	28.0 [n]	24.1 [f]	--	0.28 [m]	--	--	0.0018 [p]	--	--
- *Natural Gas*			452.61 x10^6 scf	lb/10^6 scf	0.6 [b]	550.0 [m]	40.0 [m]	3.0 [m]	3.0 [o]	--	1.40 [m]	--	--	--	--	--
1997 Actual Emission Factors																
- *Natural Gas*		5,850	517.83 x10^6 scf	lb/10^6 scf	0.6 [b]	550.0 [m]	40.0 [m]	3.0 [m]	3.0 [o]	--	1.40 [m]	--	--	--	--	--
1998 Actual Emission Factors																
- *Natural Gas*		6,141	531.22 x10^6 scf	lb/10^6 scf	0.6 [b]	550.0 [m]	40.0 [m]	3.0 [m]	3.0 [o]	--	1.40 [m]	--	--	--	--	--
1999 Actual Emission Factors																
- *Natural Gas*		8,194	405.03 x10^6 scf	lb/10^6 scf	0.6 [b]	550.0 [m]	40.0 [m]	3.0 [m]	3.0 [o]	--	1.40 [m]	--	--	--	--	--
2000 Actual Emission Factors																
- *Natural Gas*		8,681	330.06 x10^6 scf	lb/10^6 scf	0.6 [b]	280.0 [a]	84.0 [a]	7.6 [b]	7.6 [c]	--	5.5 [b]	--	--	0.0005 [b]	--	--
2001 Actual Emission Factors																
- *Natural Gas*		2,091	201.06 x10^6 scf	lb/10^6 scf	0.6 [b]	280.0 [a]	84.0 [a]	7.6 [b]	-- [j]	--	-- [j]	--	--	-- [j]	--	--
2002 Actual Emission Factors																
- *Natural Gas*		2,399	230.72 x10^6 scf	lb/10^6 scf	0.6 [b]	280.0 [a]	84.0 [a]	7.6 [b]	-- [j]	--	-- [j]	--	--	-- [j]	--	--
2003 Actual Emission Factors																
- *Natural Gas*		3,534	221.12 x10^6 scf	lb/10^6 scf	0.6 [b]	280.0 [a]	84.0 [a]	7.6 [b]	-- [j]	--	-- [j]	--	--	-- [j]	--	--
2004 Actual Emission Factors																
- *Natural Gas*		3,719	261.32 x10^6 scf	lb/10^6 scf	0.6 [b]	280.0 [a]	84.0 [a]	7.6 [b]	-- [j]	--	-- [j]	--	--	-- [j]	--	--
2005 Actual Emission Factors																
- *Natural Gas*		3,096	216.25 x10^6 scf	lb/10^6 scf	0.6 [b]	280.0 [a]	84.0 [a]	7.6 [b]	-- [j]	--	-- [j]	--	--	-- [j]	--	--
2006 Actual Emission Factors																
- *Natural Gas*		3,526	223.28 x10^6 scf	lb/10^6 scf	0.6 [b]	280.0 [a]	84.0 [a]	7.6 [b]	7.6 [c]	--	5.5 [b]	--	--	-- [j]	--	--

[a] AP-42 Table 1.4-1
[b] AP-42 Table 1.4-2
[c] AP-42 Table 1.4-2. Assume 100% of PM is PM_{10}.
[d] AP-42 Table 1.3-1. Assume max sulfur content of 2.5%.
[e] AP-42 Table 1.3-3. Assume max sulfur content of 2.5%.
[f] AP-42 Table 1.3-3. Assume 86% of PM is PM_{10}.
[g] AP-42 Table 1.3-11.
[h] Based on 50% removal in pre-scrubber and assuming 70% of TRS is sulfur (AC Permit Application, Table 3-1).
[i] Based on assuming 99.9% destruction (original TRS project AC Permit Application indicated 99.99% at 1,200°F and 0.5 second residence time).
[j] Below threshold so not reported in AOR.
[k] Assumed 99% destruction. Maximum uncontrolled TRS emissions from Permit Application (Permit No. 1230001-011-AC) is 369.3 lb/hr before the pre-scrubber. TRS NCG Pre-scrubber is designed for 90% removal of H_2S and Methyl Mercaptan 369.3 x 0.9 = 332.4 pounds removed. Net uncontrolled emissions of 36.9 lb/hr TRS as combusted with 99% destruction or 36.53 lb/hr TRS converted to SO_2.
[l] Based on permit application. See footnote "k". 36.53 lb/hr TRS @ 70% S: 36.53 x 0.70 = 25.57 x 64 lbs SO2/32 lbs H2S = 51.14 lb/hr SO_2.
[m] AP-42.
[n] AP-42. Assume max sulfur content of 2.5%.
[o] Assume 100% of PM is PM_{10}.
[p] NCASI Technical Bulletin #650.

TABLE A-19
REVISED EMISSION FACTORS USED TO DETERMINE ACTUAL ANNUAL EMISSIONS (1997-2006) FOR THE NO. 2 POWER BOILER
BUCKEYE ENERGY PROJECT PROJECT, BUCKEYE FLORIDA

Source Description	EU ID	Annual Operation (hr/yr)	Annual Fuel Usage	Factor Units	Pollutant Emission Factors											
					SO_2	NO_x	CO	PM	PM_{10}	$PM_{2.5}$	VOC	TRS	SAM	Lead	Mercury	Fluoride
No. 2 Power Boiler	003															
1997 Actual Emission Factors																
- Natural Gas		5,850	517.83 $x10^6$ scf	lb/10^6 scf	0.6 [B]	280.0 [A]	84.0 [A]	7.6 [B]	7.6 [D]	7.6 [D]	5.5 [B]	--	--	0.0005 [B]	2.6E-04 [C]	--
1998 Actual Emission Factors																
- Natural Gas		6,141	531.22 $x10^6$ scf	lb/10^6 scf	0.6 [B]	280.0 [A]	84.0 [A]	7.6 [B]	7.6 [D]	7.6 [D]	5.5 [B]	--	--	0.0005 [B]	2.6E-04 [C]	--
1999 Actual Emission Factors																
- Natural Gas		8,194	405.03 $x10^6$ scf	lb/10^6 scf	0.6 [B]	280.0 [A]	84.0 [A]	7.6 [B]	7.6 [D]	7.6 [D]	5.5 [B]	--	--	0.0005 [B]	2.6E-04 [C]	--
2000 Actual Emission Factors																
- Natural Gas		8,681	330.06 $x10^6$ scf	lb/10^6 scf	0.6 [B]	280.0 [A]	84.0 [A]	7.6 [B]	7.6 [D]	7.6 [D]	5.5 [B]	--	--	0.0005 [B]	2.6E-04 [C]	--
2001 Actual Emission Factors																
- Natural Gas		2,091	201.06 $x10^6$ scf	lb/10^6 scf	0.6 [B]	280.0 [A]	84.0 [A]	7.6 [B]	7.6 [D]	7.6 [D]	5.5 [B]	--	--	0.0005 [B]	2.6E-04 [C]	--
2002 Actual Emission Factors																
- Natural Gas		2,399	230.72 $x10^6$ scf	lb/10^6 scf	0.6 [B]	280.0 [A]	84.0 [A]	7.6 [B]	7.6 [D]	7.6 [D]	5.5 [B]	--	--	0.0005 [B]	2.6E-04 [C]	--
2003 Actual Emission Factors																
- Natural Gas		3,534	221.12 $x10^6$ scf	lb/10^6 scf	0.6 [B]	280.0 [A]	84.0 [A]	7.6 [B]	7.6 [D]	7.6 [D]	5.5 [B]	--	--	0.0005 [B]	2.6E-04 [C]	--
2004 Actual Emission Factors																
- Natural Gas		3,719	261.32 $x10^6$ scf	lb/10^6 scf	0.6 [B]	280.0 [A]	84.0 [A]	7.6 [B]	7.6 [D]	7.6 [D]	5.5 [B]	--	--	0.0005 [B]	2.6E-04 [C]	--
2005 Actual Emission Factors																
- Natural Gas		3,096	216.25 $x10^6$ scf	lb/10^6 scf	0.6 [B]	280.0 [A]	84.0 [A]	7.6 [B]	7.6 [D]	7.6 [D]	5.5 [B]	--	--	0.0005 [B]	2.6E-04 [C]	--
2006 Actual Emission Factors																
- Natural Gas		3,526	223.28 $x10^6$ scf	lb/10^6 scf	0.6 [B]	280.0 [A]	84.0 [A]	7.6 [B]	7.6 [D]	7.6 [D]	5.5 [B]	--	--	0.0005 [B]	2.6E-04 [C]	--

[A] AP-42 Table 1.4-1.
[B] AP-42 Table 1.4-2.
[C] AP-42 Table 1.4-4.
[D] AP-42 Table 1.4-2. 100% of PM is PM_{10} or $PM_{2.5}$.

TABLE A-20
BASELINE ACTUAL ANNUAL (1997-2006) EMISSIONS FOR THE NO. 2 POWER BOILER
BUCKEYE ENERGY PROJECT, BUCKEYE FLORIDA

Source Description	EU ID	Pollutant Emission Rate (TPY)											
		SO_2	NO_x	CO	PM	PM_{10}	$PM_{2.5}$	VOC	TRS	SAM	Lead	Mercury	Fluoride
No. 2 Power Boiler	003												
1997 Actual Emissions													
- *Natural Gas*		0.155	72.50	21.75	1.97	1.97	1.97	1.42	--	--	1.29E-04	6.73E-05	--
- Total		***0.155***	***72.50***	***21.75***	***1.97***	***1.97***	***1.97***	***1.42***	--	--	***1.29E-04***	***6.73E-05***	--
1998 Actual Emissions													
- *Natural Gas*		0.159	74.37	22.31	2.02	2.02	2.02	1.46	--	--	1.33E-04	6.91E-05	--
- Total		***0.159***	***74.37***	***22.31***	***2.02***	***2.02***	***2.02***	***1.46***	--	--	***1.33E-04***	***6.91E-05***	--
1999 Actual Emissions													
- *Natural Gas*		0.122	56.70	17.01	1.54	1.54	1.54	1.11	--	--	1.01E-04	5.27E-05	--
- Total		***0.122***	***56.70***	***17.01***	***1.54***	***1.54***	***1.54***	***1.11***	--	--	***1.01E-04***	***5.27E-05***	--
2000 Actual Emissions													
- *Natural Gas*		0.099	46.21	13.86	1.25	1.25	1.25	0.91	--	--	8.25E-05	4.29E-05	--
- Total		***0.099***	***46.21***	***13.86***	***1.25***	***1.25***	***1.25***	***0.91***	--	--	***8.25E-05***	***4.29E-05***	--
2001 Actual Emissions													
- *Natural Gas*		0.060	28.15	8.44	0.76	0.76	0.76	0.55	--	--	5.03E-05	2.61E-05	--
- Total		***0.060***	***28.15***	***8.44***	***0.76***	***0.76***	***0.76***	***0.55***	--	--	***5.03E-05***	***2.61E-05***	--
2002 Actual Emissions													
- *Natural Gas*		0.069	32.30	9.69	0.88	0.88	0.88	0.63	--	--	5.77E-05	3.00E-05	--
- Total		***0.069***	***32.30***	***9.69***	***0.88***	***0.88***	***0.88***	***0.63***	--	--	***5.77E-05***	***3.00E-05***	--
2003 Actual Emissions													
- *Natural Gas*		0.066	30.96	9.29	0.84	0.84	0.84	0.61	--	--	5.53E-05	2.87E-05	--
- Total		***0.066***	***30.96***	***9.29***	***0.84***	***0.84***	***0.84***	***0.61***	--	--	***5.53E-05***	***2.87E-05***	--
2004 Actual Emissions													
- *Natural Gas*		0.078	36.58	10.98	0.99	0.99	0.99	0.72	--	--	6.53E-05	3.40E-05	--
- Total		***0.078***	***36.58***	***10.98***	***0.99***	***0.99***	***0.99***	***0.72***	--	--	***6.53E-05***	***3.40E-05***	--
2005 Actual Emissions													
- *Natural Gas*		0.065	30.28	9.08	0.82	0.82	0.82	0.59	--	--	5.41E-05	2.81E-05	--
- Total		***0.065***	***30.28***	***9.08***	***0.82***	***0.82***	***0.82***	***0.59***	--	--	***5.41E-05***	***2.81E-05***	--
2006 Actual Emissions													
- *Natural Gas*		0.067	31.26	9.38	0.85	0.85	0.85	0.61	--	--	5.58E-05	2.90E-05	--
- Total		***0.067***	***31.26***	***9.38***	***0.85***	***0.85***	***0.85***	***0.61***	--	--	***5.58E-05***	***2.90E-05***	--

TABLE A-21
SUMMARY OF BASELINE 2-YEAR AVERAGE ACTUAL EMISSIONS (1997-2006) FOR THE NO. 2 POWER BOILER
BUCKEYE ENERGY PROJECT, BUCKEYE FLORIDA

Source Description	EU ID	Pollutant Emission Rate (TPY)											
		SO_2	NO_x	CO	PM	PM_{10}	$PM_{2.5}$	VOC	TRS	SAM	Lead	Mercury	Fluoride
No. 2 Power Boiler	003												
1997 - 1998 Average Emissions													
- *Natural Gas*		0.157	73.43	22.03	1.99	1.99	1.99	1.44	--	--	1.31E-04	6.82E-05	--
- Total		***0.157***	***73.43***	***22.03***	***1.99***	***1.99***	***1.99***	***1.44***	--	--	***1.31E-04***	***6.82E-05***	--
1998 - 1999 Average Emissions													
- *Natural Gas*		0.140	65.54	19.66	1.78	1.78	1.78	1.29	--	--	1.17E-04	6.09E-05	--
- Total		***0.140***	***65.54***	***19.66***	***1.78***	***1.78***	***1.78***	***1.29***	--	--	***1.17E-04***	***6.09E-05***	--
1999 - 2000 Average Emissions													
- *Natural Gas*		0.110	51.46	15.44	1.40	1.40	1.40	1.01	--	--	9.19E-05	4.78E-05	--
- Total		***0.110***	***51.46***	***15.44***	***1.40***	***1.40***	***1.40***	***1.01***	--	--	***9.19E-05***	***4.78E-05***	--
2000 - 2001 Average Emissions													
- *Natural Gas*		0.080	37.18	11.15	1.01	1.01	1.01	0.73	--	--	6.64E-05	3.45E-05	--
- Total		***0.080***	***37.18***	***11.15***	***1.01***	***1.01***	***1.01***	***0.73***	--	--	***6.64E-05***	***3.45E-05***	--
2001 - 2002 Average Emissions													
- *Natural Gas*		0.065	30.22	9.07	0.82	0.82	0.82	0.59	--	--	5.40E-05	2.81E-05	--
- Total		***0.065***	***30.22***	***9.07***	***0.82***	***0.82***	***0.82***	***0.59***	--	--	***5.40E-05***	***2.81E-05***	--
2002 - 2003 Average Emissions													
- *Natural Gas*		0.068	31.63	9.49	0.86	0.86	0.86	0.62	--	--	5.65E-05	2.94E-05	--
- Total		***0.068***	***31.63***	***9.49***	***0.86***	***0.86***	***0.86***	***0.62***	--	--	***5.65E-05***	***2.94E-05***	--
2003 - 2004 Average Emissions													
- *Natural Gas*		0.072	33.77	10.13	0.92	0.92	0.92	0.66	--	--	6.03E-05	3.14E-05	--
- Total		***0.072***	***33.77***	***10.13***	***0.92***	***0.92***	***0.92***	***0.66***	--	--	***6.03E-05***	***3.14E-05***	--
2004 - 2005 Average Emissions													
- *Natural Gas*		0.072	33.43	10.03	0.91	0.91	0.91	0.66	--	--	5.97E-05	3.10E-05	--
- Total		***0.072***	***33.43***	***10.03***	***0.91***	***0.91***	***0.91***	***0.66***	--	--	***5.97E-05***	***3.10E-05***	--
2005 - 2006 Average Emissions													
- *Natural Gas*		0.066	30.77	9.23	0.84	0.84	0.84	0.60	--	--	5.49E-05	2.86E-05	--
- Total		***0.066***	***30.77***	***9.23***	***0.84***	***0.84***	***0.84***	***0.60***	--	--	***5.49E-05***	***2.86E-05***	--
		'97 - '98	'97 - '98	'97 - '98	'97 - '98	'97 - '98	'97 - '98	'97 - '98	--	--	'97 - '98	'97 - '98	--
Highest Consecutive 2-Year Average		**0.157**	**73.43**	**22.03**	**1.99**	**1.99**	**1.99**	**1.44**	--	--	**1.31E-04**	**6.82E-05**	--

TABLE A-22
BASELINE ACTUAL OPERATING CONDITIONS FOR THE NO. 2 POWER BOILER
BUCKEYE ENERGY PROJECT, BUCKEYE FLORIDA

Year	Operating Hours (hours/yr)	Natural Gas (10^6 ft^3/yr)	Heat Input from Gas (MMBtu/yr)
No. 2 Power Boiler (EU 003)			
1997	5,850	517.8	517,830
1998	6,141	531.2	531,216
1999	8,194	405.0	405,035
2000	8,681	330.1	330,060
2001	2,091	201.1	201,060
2002	2,399	230.7	230,720
2003	3,534	221.1	221,120
2004	3,719	261.3	261,320
2005	3,096	216.3	216,250
2006	3,526	223.3	223,280
Maximum:	8,681	531.2	531,216
Average:	4,723	313.8	313,789
Minimum:	2,091	201.1	201,060

[a] Heat input values based on 1,000 MMBtu/10^6 ft^3 for Natural Gas.

TABLE A-23
BASELINE ACTUAL ANNUAL (1997-2006) EMISSION FACTORS FROM ANNUAL OPERATING REPORTS FOR THE NO. 1 BARK BOILER
BUCKEYE ENERGY PROJECT PROJECT, BUCKEYE FLORIDA

Source Description	EU ID	Annual Operation (hr/yr)	Annual Fuel Usage	Factor Units	Pollutant Emission Factors											
					SO_2	NO_x	CO	PM	PM_{10}	$PM_{2.5}$	VOC	TRS	SAM	Lead	Mercury	Fluoride
<u>No. 1 Bark Boiler</u>	004															
1996 Actual Emission Factors																
- No. 6 Fuel Oil		8,370	863.13 x10^3 gal	lb/10^3 gal	235.5 [x]	55.0 [m]	5.0 [m]	-- [q]	-- [q]	--	0.28 [m]	--	--	0.0018 [p]	--	--
- Wood/Bark			88,628 tons dry wood	lb/ton dry wood	0.024 [r]	1.8 [r]	40.0 [m]	41.7 [s]	36.3 [t]	--	0.31 [r]	--	--	0.0012 [p]	--	--
- TRS Burning			567,904 ton ADUP	lb/hr	4.8 [v]	--	--	--	--	--	--	2.7 [u]	--	--	--	--
1997 Actual Emission Factors																
- No. 6 Fuel Oil		8,188	461.55 x10^3 gal	lb/10^3 gal	235.5 [x]	55.0 [m]	5.0 [m]	-- [q]	-- [q]	--	0.28 [m]	--	--	0.0018 [p]	--	--
- Wood/Bark			96,338 tons dry wood	lb/ton dry wood	0.024 [r]	1.8 [r]	40.0 [m]	36.5 [s]	31.7 [t]	--	0.31 [r]	--	--	0.0012 [p]	--	--
- TRS Burning			560,525 ton ADUP	lb/hr	4.8 [v]	--	--	--	--	--	--	2.7 [u]	--	--	--	--
1998 Actual Emission Factors																
- No. 6 Fuel Oil		8,158	371.14 x10^3 gal	lb/10^3 gal	235.5 [x]	55.0 [m]	5.0 [m]	-- [q]	-- [q]	--	0.28 [m]	--	--	0.0018 [p]	--	--
- Wood/Bark			84,428 tons dry wood	lb/ton dry wood	0.024 [r]	1.8 [r]	40.0 [m]	33.2 [s]	26.9 [t]	--	0.31 [r]	--	--	0.0012 [p]	--	--
- TRS Burning			549,039 ton ADUP	lb/hr	4.8 [v]	--	--	--	--	--		2.7 [u]	--	--	--	--
1999 Actual Emission Factors																
- No. 6 Fuel Oil		8,077	533.35 x10^3 gal	lb/10^3 gal	235.5 [x]	55.0 [m]	5.0 [m]	-- [q]	-- [q]	--	0.28 [m]	--	--	0.0018 [p]	--	--
- Wood/Bark			84,913 tons dry wood	lb/ton dry wood	0.024 [r]	1.8 [r]	40.0 [m]	36.9 [s]	29.90 [t]	--	0.31 [r]	--	--	0.0012 [p]	--	--
- TRS Burning			585,895 ton ADUP	lb/hr	176.2 [w]	--	--	--	--	--	--	2.7 [u]	--	--	--	--
2000 Actual Emission Factors																
- No. 6 Fuel Oil		8,405	317.24 x10^3 gal	lb/10^3 gal	235.5 [x]	47.0 [d]	5.0 [d]	1.3 [o]	1.1 [n]	--	1.28 [e]	--	--	0.00151 [k]	--	--
- Wood/Bark			88,766 tons dry wood	lb/ton dry wood	0.09 [a]	3.0 [b]	27.2 [b]	1.888 [w]	1.85 [c]	--	0.544 [r]	--	--	--	--	--
- TRS Burning			570,415 ton ADUP	lb/hr	176.2 [w]	--	--	--	--	--	--	2.7 [u]	--	--	--	--
2001 Actual Emission Factors																
- No. 6 Fuel Oil		8,119	507.96 x10^3 gal	lb/10^3 gal	235.5 [x]	47.0 [d]	--	1.3 [o]	--	--	--	--	--	--	--	--
- Wood/Bark			92,142 tons dry wood	lb/ton dry wood	0.09 [a]	3.0 [b]	27.2 [b]	1.97 [w]	1.93 [c]	--	0.544 [i]	--	--	--	--	--
- TRS Burning			557,840 ton ADUP	lb/hr	176.2 [w]	--	--	--	--	--	--	2.7 [u]	--	--	--	--
2002 Actual Emission Factors																
- No. 6 Fuel Oil		8,148	321.15 x10^3 gal	lb/10^3 gal	235.5 [x]	47.0 [d]	--	1.3 [o]	--	--	--	--	--	--	--	--
- Wood/Bark			98,425 tons dry wood	lb/ton dry wood	0.09 [a]	3.0 [b]	27.2 [b]	1.584 [w]	1.552 [c]	--	0.544 [i]	--	--	--	--	--
- TRS Burning			536,633 ton ADUP	lb/hr	170.3 [z]	--	--	--	--	--	--	2.7 [u]	--	--	--	--
2003 Actual Emission Factors																
- No. 6 Fuel Oil		8,215	485.28 x10^3 gal	lb/10^3 gal	235.5 [x]	47.0 [d]		1.3 [o]	--	--	--	--	--	--	--	--
- Wood/Bark			88,802 tons dry wood	lb/ton dry wood	0.09 [a]	3.0 [b]	27.2 [b]	1.632 [w]	1.559 [c]	--	0.544 [i]	--	--	--	--	--
- TRS Burning			515,160 ton ADUP	lb/hr	137.8 [z]	--	--	--	--	--	--	2.7 [u]	--	--	--	--
2004 Actual Emission Factors																
- No. 6 Fuel Oil		8,253	521.33 x10^3 gal	lb/10^3 gal	235.5 [x]	47.0 [d]	--	1.3 [o]	--	--	--	--	--	--	--	--
- Wood/Bark			93,708 tons dry wood	lb/ton dry wood	0.09 [a]	3.0 [b]	27.2 [b]	1.568 [w]	1.537 [c]	--	0.544 [i]	--	--	--	--	--
- TRS Burning			528,455 ton ADUP	lb/hr	135.7 [z]	--	--	--	--	--	--	1.5 [j]	--	--	--	--
2005 Actual Emission Factors																
- No. 6 Fuel Oil		8,531	766.74 x10^3 gal	lb/10^3 gal	235.5 [x]	47.0 [d]	--	1.3 [o]	--	--	--	--	--	--	--	--
- Wood/Bark			98,139 tons dry wood	lb/ton dry wood	0.24 [f]	3.5 [g]	24.0 [b]	1.776 [w]	1.740 [h]	--	0.544 [g]	--	--	--	--	--
- TRS Burning		8,235	563,823 ton ADUP	lb/hr	130.0 [z]	--	--	--	--	--	--	1.5 [l]	--	--	--	--
2006 Actual Emission Factors																
- No. 6 Fuel Oil		8,310	227.40 x10^3 gal	lb/10^3 gal	235.5 [x]	47.0 [d]	5.0 [d]	1.3 [o]	1.1 [n]	--	--	--	--	--	--	--
- Wood/Bark			104,050 tons dry wood	lb/ton dry wood	0.24 [f]	3.5 [g]	24.0 [b]	1.776 [w]	1.740 [h]	--	0.544 [g]	--	--	--	--	--
- TRS Burning		8,274	483,592 ton ADUP	lb/hr	145.7	--	--	--	--	--	--	0.8	--	--	--	--

[a] AP-42 Table 1.6-2 and 40% removal in scrubber.
[b] AP-42 Table 1.6-2.
[c] AP-42 Table 1.6-7. 98% of PM is PM10.
[d] AP-42 Table 1.3-1. Assume max sulfur content of 2.5%.
[e] AP-42 Table 1.3-3. Assume max sulfur content of 2.5%.
[f] NCASI Technical Bulletin #884. Assume 40% removal in scrubber.
[g] NCASI Technical Bulletin #884.
[h] NCASI Technical Bulletin #884, Table 9.6b, 98% of PM is PM10.
[i] NCASI Environmental Research Handbook 3-02.
[j] Assume 45% of maximum permitted emissions rate (based on last stack test).
[k] AP-42 Table 1.3-11.
[l] Emissions based on last stack test.
[m] AP-42.
[n] AP-42 Table 1.3-5. Assume 86% of PM is PM10.
[o] AP-42 Table 1.3-1. Assume max sulfur content of 2.5% and 95% removal in scrubber.
[p] NCASI Technical Bulletin #650.
[q] Included in stack test data/defer to major fuel.
[r] NCASI Technical Bulletin #646.
[s] Based on last t [s] Based on last three stack tests x 1.15.
[t] AP-42 Table 1.[t] AP-42 Table 1.6-10. Assume 87% of PM is PM10.
[u] Assume 80% c [u] Assume 80% of maximum permitted emissions rate.
[v] NCASI Specia [v] NCASI Special Report #93-03. Emission factor corrected to a 40% reduction in the bark boiler scrubber boiler scrubber.
[w] Average of las [w] Average of last three stack tests.
[x] AP-42 Table 1 [x] AP-42 Table 1.3-1. Assume max sulfur content of 2.5% and 40% removal in scrubber.

TABLE A-24
REVISED EMISSION FACTORS USED TO DETERMINE ACTUAL ANNUAL EMISSIONS (1997-2006) FOR THE NO. 1 BARK BOILER
BUCKEYE ENERGY PROJECT PROJECT, BUCKEYE FLORIDA

Source Description	EU ID	Annual Operation (hr/yr)	Annual Fuel Usage	Factor Units	Pollutant Emission Factors											
					SO_2	NO_x	CO	PM	PM_{10}	$PM_{2.5}$	VOC	TRS	SAM	Lead	Mercury	Fluoride
No. 1 Bark Boiler	004															
1997 Actual Emission Factors																
- No. 6 Fuel Oil - 2.5% Sulfur		8,188	461.55 x10^3 gal	lb/10^3 gal	235.5 [A]	47.0 [A]	5.0 [A]	-- [B]	-- [B]	-- [B]	0.28 [D]	--	10.4 [N]	0.0015 [E]	1.1E-04 [E]	3.7E-02 [E]
- Wood/Bark			96,338 tons dry wood	lb/ton dry wood	0.27 [G]	4.0 [G]	10.8 [G]	31.94 [I,J]	31.30 [F,J]	31.30 [F,J]	0.612 [G]	--	0.012 [N]	7.2E-04 [K]	1.22E-05 [K]	--
- TRS Burning			560,525 ton ADUP	lb/hr	195.1 [I,J]	--	--	--	--	--	--	1.5 [M,J]	8.6 [N,H]	--	--	--
1998 Actual Emission Factors																
- No. 6 Fuel Oil - 2.5% Sulfur		8,158	371.14 x10^3 gal	lb/10^3 gal	235.5 [A]	47.0 [A]	5.0 [A]	-- [B]	-- [B]	-- [B]	0.28 [D]	--	10.4 [N]	0.0015 [E]	1.1E-04 [E]	3.7E-02 [E]
- Wood/Bark			84,428 tons dry wood	lb/ton dry wood	0.27 [G]	4.0 [G]	10.8 [G]	33.01 [I,J]	32.35 [F,J]	32.35 [F,J]	0.612 [G]	--	0.012 [N]	7.2E-04 [K]	1.22E-05 [K]	--
- TRS Burning			549,039 ton ADUP	lb/hr	190.8 [I,J]	--	--	--	--	--	--	1.5 [M,J]	8.4 [N,H]	--	--	--
1999 Actual Emission Factors																
- No. 6 Fuel Oil - 2.5% Sulfur		8,077	533.35 x10^3 gal	lb/10^3 gal	235.5 [A]	47.0 [A]	5.0 [A]	-- [B]	-- [B]	-- [B]	0.28 [D]	--	10.4 [N]	0.0015 [E]	1.1E-04 [E]	3.7E-02 [E]
- Wood/Bark			84,913 tons dry wood	lb/ton dry wood	0.27 [G]	4.0 [G]	10.8 [G]	33.87 [I,J]	33.20 [F,J]	33.20 [F,J]	0.612 [G]	--	0.012 [N]	7.2E-04 [K]	1.22E-05 [K]	--
- TRS Burning			585,895 ton ADUP	lb/hr	178.1 [I,J]	--	--	--	--	--	--	1.5 [M,J]	7.8 [N,J]	--	--	--
2000 Actual Emission Factors																
- No. 6 Fuel Oil - 1.7% Sulfur		8,405	317.24 x10^3 gal	lb/10^3 gal	160.1 [A]	47.0 [A]	5.0 [A]	0.94 [A]	0.94 [C]	0.91 [C]	0.28 [D]	--	7.0 [N]	0.0015 [E]	1.1E-04 [E]	3.7E-02 [E]
- Wood/Bark			88,766 tons dry wood	lb/ton dry wood	0.27 [G]	4.0 [G]	10.8 [G]	30.52 [I,J]	29.91 [F,J]	29.91 [F,J]	0.612 [G]	--	0.012 [N]	7.2E-04 [K]	1.22E-05 [K]	--
- TRS Burning			570,415 ton ADUP	lb/hr	176.2 [I,J]	--	--	--	--	--	--	1.5 [M,J]	7.8 [N,J]	--	--	--
2001 Actual Emission Factors																
- No. 6 Fuel Oil - 1.8% Sulfur		8,119	507.96 x10^3 gal	lb/10^3 gal	169.6 [A]	47.0 [A]	5.0 [A]	0.99 [A]	0.99 [C]	0.96 [C]	0.28 [D]	--	7.5 [N]	0.0015 [E]	1.1E-04 [E]	3.7E-02 [E]
- Wood/Bark			92,142 tons dry wood	lb/ton dry wood	0.27 [G]	4.0 [G]	10.8 [G]	32.55 [I,J]	31.90 [F,J]	31.90 [F,J]	0.612 [G]	--	0.012 [N]	7.2E-04 [K]	1.22E-05 [K]	--
- TRS Burning			557,840 ton ADUP	lb/hr	176.2 [I,J]	--	--	--	--	--	--	1.5 [M,J]	7.8 [N,J]	--	--	--
2002 Actual Emission Factors																
- No. 6 Fuel Oil - 1.9% Sulfur		8,148	321.15 x10^3 gal	lb/10^3 gal	179.0 [A]	47.0 [A]	5.0 [A]	1.03 [A]	1.03 [C]	1.00 [C]	0.28 [D]	--	7.9 [N]	0.0015 [E]	1.1E-04 [E]	3.7E-02 [E]
- Wood/Bark			98,425 tons dry wood	lb/ton dry wood	0.27 [G]	4.0 [G]	10.8 [G]	32.80 [I,J]	32.14 [F,J]	32.14 [F,J]	0.612 [G]	--	0.012 [N]	7.2E-04 [K]	1.22E-05 [K]	--
- TRS Burning			536,633 ton ADUP	lb/hr	171.7 [I,J]	--	--	--	--	--	--	1.5 [M,J]	7.6 [N,J]	--	--	--
2003 Actual Emission Factors																
- No. 6 Fuel Oil - 1.6% Sulfur		8,215	485.28 x10^3 gal	lb/10^3 gal	150.7 [A]	47.0 [A]	5.0 [A]	0.90 [A]	0.90 [C]	0.87 [C]	0.28 [D]	--	6.6 [N]	0.0015 [E]	1.1E-04 [E]	3.7E-02 [E]
- Wood/Bark			88,802 tons dry wood	lb/ton dry wood	0.27 [G]	4.0 [G]	10.8 [G]	31.24 [I,J]	30.62 [F,J]	30.62 [F,J]	0.612 [G]	--	0.012 [N]	7.2E-04 [K]	1.22E-05 [K]	--
- TRS Burning			515,160 ton ADUP	lb/hr	140.0 [I,J]	--	--	--	--	--	--	1.5 [M,J]	6.2 [N,J]	--	--	--
2004 Actual Emission Factors																
- No. 6 Fuel Oil - 1.8% Sulfur		8,253	521.33 x10^3 gal	lb/10^3 gal	169.6 [A]	47.0 [A]	5.0 [A]	0.99 [A]	0.99 [C]	0.96 [C]	0.28 [D]	--	7.5 [N]	0.0015 [E]	1.1E-04 [E]	3.7E-02 [E]
- Wood/Bark			93,708 tons dry wood	lb/ton dry wood	0.27 [G]	4.0 [G]	10.8 [G]	30.11 [I,J]	29.51 [F,J]	29.51 [F,J]	0.612 [G]	--	0.012 [N]	7.2E-04 [K]	1.22E-05 [K]	--
- TRS Burning			528,455 ton ADUP	lb/hr	152.7 [I,J]	--	--	--	--	--	--	1.5 [M,J]	6.7 [N,J]	--	--	--
2005 Actual Emission Factors																
- No. 6 Fuel Oil - 1.6% Sulfur		8,531	766.74 x10^3 gal	lb/10^3 gal	150.7 [A]	47.0 [A]	5.0 [A]	0.90 [A]	0.90 [C]	0.87 [C]	0.28 [D]	--	6.6 [N]	0.0015 [E]	1.1E-04 [E]	3.7E-02 [E]
- Wood/Bark			98,139 tons dry wood	lb/ton dry wood	0.27 [G]	4.0 [G]	10.8 [G]	31.65 [I,J]	31.02 [F,J]	31.02 [F,J]	0.612 [G]	--	0.012 [N]	7.2E-04 [K]	1.22E-05 [K]	--
- TRS Burning		8,235	563,823 ton ADUP	lb/hr	150.6 [I,J]	--	--	--	--	--	--	1.5 [M,J]	6.6 [N,J]	--	--	--
2006 Actual Emission Factors																
- No. 6 Fuel Oil - 1.8% Sulfur		8,310	227.40 x10^3 gal	lb/10^3 gal	169.6 [A]	47.0 [A]	5.0 [A]	0.99 [A]	0.99 [C]	0.96 [C]	0.28 [D]	--	7.5 [N]	0.0015 [E]	1.1E-04 [E]	3.7E-02 [E]
- Wood/Bark			104,050 tons dry wood	lb/ton dry wood	0.27 [G]	4.0 [G]	10.8 [G]	30.19 [I,J]	29.58 [F,J]	29.58 [F,J]	0.612 [G]	--	0.012 [N]	7.2E-04 [K]	1.22E-05 [K]	--
- TRS Burning		8,274	483,592 ton ADUP	lb/hr	145.7 [I,J]	--	--	--	--	--	--	1.5 [M,J]	6.4 [N,J]	--	--	--

[A] AP-42, Table 1.3-1. Sulfur content reported in the AOR, 40% removal of SO_2 in scrubber, and 95% removal of PM in scrubber.
[B] Included in stack test data of major fuel (wood/bark).
[C] AP-42 Table 1.3-4 for scrubber control. 100% of PM emissions are PM_{10}, 97% of PM emissions are $PM_{2.5}$.
[D] AP-42 Table 1.3-3.
[E] AP-42 Table 1.3-11.
[F] AP-42 Table 1.6-5. Factor based on control with a wet scrubber. 98% of PM emissions are PM_{10} or $PM_{2.5}$.
[G] NCASI Technical Bulletin No. 884, Table 9.6a, for wet wood. Emissions based on a stoker boiler and 18 MMBtu/ton dry wood. Assume 40% removal of SO_2 in scrubber.
[H] Units of lb/ton ADUP.
[I] Based on the 5-year average stack tests (see Table A-27).
[J] Units of lb/hr.
[K] NCASI Technical Bulletin No. 858, Table 20B. Emissions based wood-fired boilers with wet scrubbers and 18 MMBtu/ton dry wood.
[L] NCASI Special Report 93-03, Table 1. Emission factor corrected to a 40% reduction in the scrubber.
[M] Emissions based on last stack test.
[N] Based on similar derivation of sulfuric acid mist from AP-42 for fuel oil: 3.6% of SO_2 becomes SO_3 then take into account the ratio of sulfuric acid mist and sulfur trioxide molecular weights (98/80).

TABLE A-25
BASELINE ACTUAL ANNUAL (1997-2006) EMISSIONS FOR THE NO. 1 BARK BOILER
BUCKEYE ENERGY PROJECT, BUCKEYE FLORIDA

Source Description	EU ID	Pollutant Emission Rate (TPY)											
		SO_2	NO_x	CO	PM	PM_{10}	$PM_{2.5}$	VOC	TRS	SAM	Lead	Mercury	Fluoride
No. 1 Bark Boiler	004												
1997 Actual Emissions													
- Residual Oil		54.35	10.85	1.15	--	--	--	0.06	--	2.39	3.48E-04	2.61E-05	0.009
- Wood/Bark		13.01	190.75	520.23	130.76	128.15	128.15	29.48	--	0.57	3.47E-02	5.90E-04	--
- TRS Burning		798.74	--	--	--	--	--	--	6.14	2,405.89	--	--	--
- Total w/out TRS burning		***67.35***	***201.60***	***521.38***	***130.76***	***128.15***	***128.15***	***29.54***	--	***2.96***	***3.50E-02***	***6.16E-04***	***0.009***
1998 Actual Emissions													
- Residual Oil		43.70	8.72	0.93	--	--	--	0.05	--	1.92	2.80E-04	2.10E-05	0.007
- Wood/Bark		11.40	167.17	455.91	134.63	131.94	131.94	25.83	--	0.50	3.04E-02	5.17E-04	--
- TRS Burning		778.36	--	--	--	--	--	--	6.12	2,304.91	--	--	--
- Total w/out TRS burning		***55.10***	***175.89***	***456.84***	***134.63***	***131.94***	***131.94***	***25.89***	--	***2.42***	***3.07E-02***	***5.38E-04***	***0.007***
1999 Actual Emissions													
- Residual Oil		62.80	12.53	1.33	--	--	--	0.07	--	2.76	4.03E-04	3.01E-05	0.010
- Wood/Bark		11.46	168.13	458.53	136.80	134.06	134.06	25.98	--	0.50	3.06E-02	5.20E-04	--
- TRS Burning		719.32	--	--	--	--	--	--	6.06	31.65	--	--	--
- Total w/out TRS burning		***74.26***	***180.66***	***459.86***	***136.80***	***134.06***	***134.06***	***26.06***	--	***3.27***	***3.10E-02***	***5.50E-04***	***0.010***
2000 Actual Emissions													
- Residual Oil		25.40	7.46	0.79	0.15	0.15	0.14	0.04	--	1.12	2.40E-04	1.79E-05	0.006
- Wood/Bark		11.98	175.76	479.34	128.26	125.70	125.70	27.16	--	0.53	3.20E-02	5.43E-04	--
- TRS Burning		740.43	--	--	--	--	--	--	6.30	32.58	--	--	--
- Total w/out TRS burning		***37.38***	***183.21***	***480.13***	***128.41***	***125.84***	***125.84***	***27.21***	--	***1.64***	***3.22E-02***	***5.61E-04***	***0.006***
2001 Actual Emissions													
- Residual Oil		43.06	11.94	1.27	0.25	0.25	0.24	0.07	--	1.89	3.84E-04	2.87E-05	0.009
- Wood/Bark		12.44	182.44	497.57	132.12	129.48	129.48	28.20	--	0.55	3.32E-02	5.64E-04	--
- TRS Burning		715.24	--	--	--	--	--	--	6.09	31.47	--	--	--
- Total w/out TRS burning		***55.50***	***194.38***	***498.84***	***132.37***	***129.73***	***129.72***	***28.27***	--	***2.44***	***3.36E-02***	***5.93E-04***	***0.009***
2002 Actual Emissions													
- Residual Oil		28.74	7.55	0.80	0.17	0.17	0.16	0.04	--	1.26	2.42E-04	1.81E-05	0.006
- Wood/Bark		13.29	194.88	531.50	133.63	130.95	130.95	30.12	--	0.58	3.54E-02	6.02E-04	--
- TRS Burning		699.60	--	--	--	--	--	--	6.11	30.78	--	--	--
- Total w/out TRS burning		***42.03***	***202.43***	***532.30***	***133.79***	***131.12***	***131.12***	***30.16***	--	***1.85***	***3.57E-02***	***6.21E-04***	***0.006***
2003 Actual Emissions													
- Residual Oil		36.57	11.40	1.21	0.22	0.22	0.21	0.07	--	1.61	3.66E-04	2.74E-05	0.009
- Wood/Bark		11.99	175.83	479.53	128.32	125.75	125.75	27.17	--	0.53	3.20E-02	5.43E-04	--
- TRS Burning		574.91	--	--	--	--	--	--	6.16	25.30	--	--	--
- Total w/out TRS burning		***48.56***	***187.23***	***480.74***	***128.54***	***125.97***	***125.96***	***27.24***	--	***2.14***	***3.23E-02***	***5.71E-04***	***0.009***
2004 Actual Emissions													
- Residual Oil		44.20	12.25	1.30	0.26	0.26	0.25	0.07	--	1.94	3.94E-04	2.95E-05	0.010
- Wood/Bark		12.65	185.54	506.02	124.26	121.78	121.78	28.67	--	0.56	3.37E-02	5.73E-04	--
- TRS Burning		630.15	--	--	--	--	--	--	6.19	27.73	--	--	--
- Total w/out TRS burning		***56.85***	***197.79***	***507.32***	***124.52***	***122.03***	***122.03***	***28.75***	--	***2.50***	***3.41E-02***	***6.03E-04***	***0.010***
2005 Actual Emissions													
- Residual Oil		57.78	18.02	1.92	0.34	0.34	0.33	0.11	--	2.54	5.79E-04	4.33E-05	0.014
- Wood/Bark		13.25	194.32	529.95	135.01	132.31	132.31	30.03	--	0.58	3.53E-02	6.01E-04	--
- TRS Burning		642.35	--	--	--	--	--	--	6.40	28.26	--	--	--
- Total w/out TRS burning		***71.03***	***212.33***	***531.87***	***135.36***	***132.66***	***132.65***	***30.14***	--	***3.13***	***3.59E-02***	***6.44E-04***	***0.014***
2006 Actual Emissions													
- Residual Oil		19.28	5.34	0.57	0.11	0.11	0.11	0.03	--	0.85	1.72E-04	1.28E-05	0.004
- Wood/Bark		14.05	206.02	561.87	125.42	122.91	122.91	31.84	--	0.62	3.75E-02	6.37E-04	--
- TRS Burning		605.38	--	--	--	--	--	--	6.23	26.64	--	--	--
- Total w/out TRS burning		***33.33***	***211.36***	***562.44***	***125.54***	***123.03***	***123.02***	***31.87***	--	***1.47***	***3.76E-02***	***6.50E-04***	***0.004***

TABLE A-26
SUMMARY OF BASELINE 2-YEAR AVERAGE ACTUAL EMISSIONS (1997-2006) FOR THE NO. 1 BARK BOILER
BUCKEYE ENERGY PROJECT, BUCKEYE FLORIDA

Source Description	EU ID	Pollutant Emission Rate (TPY) SO_2	NO_x	CO	PM	PM_{10}	$PM_{2.5}$	VOC	TRS	SAM	Lead	Mercury	Fluoride
No. 1 Bark Boiler	**004**												
1997 - 1998 Average Emissions													
- Residual Oil		49.02	9.78	1.04	--	--	--	0.06	--	2.16	3.14E-04	2.35E-05	0.008
- Wood/Bark		12.20	178.96	488.07	132.70	130.04	130.04	27.66	--	0.54	3.25E-02	5.53E-04	--
- TRS Burning		788.55	--	--	--	--	--	--	6.13	2,355.40	--	--	--
- Total w/out TRS burning		***61.23***	***188.74***	***489.11***	***132.70***	***130.04***	***130.04***	***27.72***	--	***2.69***	***3.29E-02***	***5.77E-04***	***0.008***
1998 - 1999 Average Emissions													
- Residual Oil		53.25	10.63	1.13	--	--	--	0.06	--	2.34	3.41E-04	2.56E-05	0.008
- Wood/Bark		11.43	167.65	457.22	135.72	133.00	133.00	25.91	--	0.50	3.05E-02	5.18E-04	--
- TRS Burning		748.84	--	--	--	--	--	--	6.09	1,168.28	--	--	--
- Total w/out TRS burning		***64.68***	***178.28***	***458.35***	***135.72***	***133.00***	***133.00***	***25.97***	--	***2.85***	***3.08E-02***	***5.44E-04***	***0.008***
1999 - 2000 Average Emissions													
- Residual Oil		44.10	9.99	1.06	0.15	0.15	0.14	0.06	--	1.94	3.21E-04	2.40E-05	0.008
- Wood/Bark		11.72	171.94	468.93	132.53	129.88	129.88	26.57	--	0.52	3.13E-02	5.31E-04	--
- TRS Burning		729.88	--	--	--	--	--	--	6.18	32.11	--	--	--
- Total w/out TRS burning		***55.82***	***181.94***	***470.00***	***132.68***	***130.03***	***130.02***	***26.63***	--	***2.46***	***3.16E-02***	***5.55E-04***	***0.008***
2000 - 2001 Average Emissions													
- Residual Oil		34.23	9.70	1.03	0.20	0.20	0.19	0.06	--	1.51	3.12E-04	2.33E-05	0.008
- Wood/Bark		12.21	179.10	488.45	130.19	127.59	127.59	27.68	--	0.54	3.26E-02	5.54E-04	--
- TRS Burning		727.84	--	--	--	--	--	--	6.20	32.02	--	--	--
- Total w/out TRS burning		***46.44***	***188.80***	***489.48***	***130.39***	***127.79***	***127.78***	***27.74***	--	***2.04***	***3.29E-02***	***5.77E-04***	***0.008***
2001 - 2002 Average Emissions													
- Residual Oil		35.90	9.74	1.04	0.21	0.21	0.20	0.06	--	1.58	3.13E-04	2.34E-05	0.008
- Wood/Bark		12.86	188.66	514.53	132.88	130.22	130.22	29.16	--	0.57	3.43E-02	5.83E-04	--
- TRS Burning		707.42	--	--	--	--	--	--	6.10	31.13	--	--	--
- Total w/out TRS burning		***48.77***	***198.40***	***515.57***	***133.08***	***130.43***	***130.42***	***29.21***	--	***2.15***	***3.46E-02***	***6.07E-04***	***0.008***
2002 - 2003 Average Emissions													
- Residual Oil		32.66	9.48	1.01	0.19	0.19	0.19	0.06	--	1.44	3.04E-04	2.28E-05	0.008
- Wood/Bark		12.64	185.35	505.51	130.97	128.35	128.35	28.65	--	0.56	3.37E-02	5.73E-04	--
- TRS Burning		637.25	--	--	--	--	--	--	6.14	28.04	--	--	--
- Total w/out TRS burning		***45.29***	***194.83***	***506.52***	***131.16***	***128.55***	***128.54***	***28.70***	--	***1.99***	***3.40E-02***	***5.96E-04***	***0.008***
2003 - 2004 Average Emissions													
- Residual Oil		40.38	11.83	1.26	0.24	0.24	0.23	0.07	--	1.78	3.80E-04	2.84E-05	0.009
- Wood/Bark		12.32	180.68	492.78	126.29	123.76	123.76	27.92	--	0.54	3.29E-02	5.58E-04	--
- TRS Burning		602.53	--	--	--	--	--	--	6.18	26.51	--	--	--
- Total w/out TRS burning		***52.70***	***192.51***	***494.03***	***126.53***	***124.00***	***124.00***	***27.99***	--	***2.32***	***3.32E-02***	***5.87E-04***	***0.009***
2004 - 2005 Average Emissions													
- Residual Oil		50.99	15.13	1.61	0.30	0.30	0.29	0.09	--	2.24	4.86E-04	3.64E-05	0.012
- Wood/Bark		12.95	189.93	517.99	129.64	127.05	127.05	29.35	--	0.57	3.45E-02	5.87E-04	--
- TRS Burning		636.25	--	--	--	--	--	--	6.29	28.00	--	--	--
- Total w/out TRS burning		***63.94***	***205.06***	***519.60***	***129.94***	***127.35***	***127.34***	***29.44***	--	***2.81***	***3.50E-02***	***6.23E-04***	***0.012***
2005 - 2006 Average Emissions													
- Residual Oil		38.53	11.68	1.24	0.23	0.23	0.22	0.07	--	1.70	3.75E-04	2.81E-05	0.009
- Wood/Bark		13.65	200.17	545.91	130.22	127.61	127.61	30.93	--	0.60	3.64E-02	6.19E-04	--
- TRS Burning		623.86	--	--	--	--	--	--	6.32	27.45	--	--	--
- Total w/out TRS burning		***52.18***	***211.85***	***547.15***	***130.45***	***127.84***	***127.84***	***31.00***	--	***2.30***	***3.68E-02***	***6.47E-04***	***0.009***
		'98 - '99	**'05 - '06**	**'05 - '06**	**'98 - '99**	**'98 - '99**	**'98 - '99**	**'05 - '06**	**--**	**'04 - '05**	**'05 - '06**	**'05 - '06**	**'04 - '05**
Highest Consecutive 2-Year Average		**64.68**	**211.85**	**547.15**	**135.72**	**133.00**	**133.00**	**31.00**	--	**2.85**	**3.68E-02**	**6.47E-04**	**0.012**

TABLE A-27
STACK TESTS AND EMISSIONS DATA FOR THE NO. 1 BARK BOILER
BUCKEYE ENERGY PROJECT, BUCKEYE FLORIDA

SO_2				PM			
Test Date	Emission Rate (lb/hr)	Averaging Period	5-year Average Emission Factor (lb/hr)	Test Date	Emission Rate (lb/hr) [a]	Averaging Period	5-year Average Emission Rate (lb/hr)
No. 1 Bark Boiler (EU 004)							
11/17/1993 [b]	304.33			9/8/1993	28.67		
1/5/1995 [b]	344.67			10/13/1994	35.97		
11/21/1995	183.90			10/5/1995	42.30		
1/7/1997	206.30			11/13/1996	30.63		
5/2/1998	182.27	1993-1997	195.10	11/19/1997	22.13	1993-1997	31.94
11/15/1999	140.00	1994-1998	190.82	12/8/1998	34.00	1994-1998	33.01
3/20/2001 [b]	16.49	1995-1999	178.12	9/29/1999	40.30	1995-1999	33.87
4/12/2002	192.90	1996-2000	176.19	9/28/2000	25.53	1996-2000	30.52
10/16/2002	116.60	1997-2001	176.19	11/30/2001	40.77	1997-2001	32.55
10/30/2003	110.37	1998-2002	171.72	10/16/2002	23.40	1998-2002	32.80
9/1/2004	190.97	1999-2003	139.97	10/28/2003	26.20	1999-2003	31.24
11/8/2005	142.13	2000-2004	152.71	9/1/2004	34.67	2000-2004	30.11
10/5/2006	121.23	2001-2005	150.59	11/8/2005	33.23	2001-2005	31.65
		2002-2006	145.70	10/5/2006	33.43	2002-2006	30.19

[a] Maximum permitted PM emission rate is 0.158 lb/MMBtu, or 47.3 lb/hr.

[b] Stack test value is not representative of current operation and has not been included in the analysis.

TABLE A-28
BASELINE ACTUAL OPERATING CONDITIONS FOR THE NO. 1 BARK BOILER
BUCKEYE ENERGY PROJECT, BUCKEYE FLORIDA

		Fuel Usage			Heat Input				
Year	Operating Hours (hours/yr)	No. 6 Fuel Oil (10^3 gal/yr)	No. 6 Fuel Oil (% Sulfur)	Wood/Bark, dry (TPY)	No. 6 Fuel Oil (MMBtu/yr)	Wood/Bark, dry (MMBtu/yr)	Total (MMBtu/yr)	% Heat Input from Oil	% Heat Input from wood
No. 1 Bark Boiler (EU 004)									
1997	8,188	461.6	2.5	96,338	67,386	1,541,408	1,608,794	4.2%	95.8%
1998	8,158	371.1	2.5	84,428	54,186	1,350,848	1,405,034	3.9%	96.1%
1999	8,077	533.3	2.5	84,913	77,869	1,358,608	1,436,477	5.4%	94.6%
2000	8,405	317.2	1.7	88,766	46,317	1,420,256	1,466,573	3.2%	96.8%
2001	8,119	508.0	1.8	92,142	74,162	1,474,278	1,548,441	4.8%	95.2%
2002	8,148	321.2	1.9	98,425	46,888	1,574,800	1,621,688	2.9%	97.1%
2003	8,215	485.3	1.6	88,802	70,851	1,420,832	1,491,683	4.7%	95.3%
2004	8,253	521.3	1.8	93,708	76,114	1,499,322	1,575,436	4.8%	95.2%
2005	8,531	766.7	1.6	98,139	111,944	1,570,229	1,682,173	6.7%	93.3%
2006	8,310	227.4	1.8	104,050	33,200	1,664,800	1,698,000	2.0%	98.0%
Maximum:	8,531	766.7	2.5	104,050	111,944	1,664,800	1,698,000	6.7%	98.0%
Average:	8,240	451.3	2.0	92,971	65,892	1,487,538	1,553,430	4.2%	95.8%
Minimum:	8,077	227.4	1.6	84,428	33,200	1,350,848	1,405,034	2.0%	93.3%

[a] Heat input values based on 146 MMBtu/10^3 gal for No. 6 Fuel Oil, and 16 MMBtu/ton of dry wood.

TABLE A-29
BASELINE ACTUAL ANNUAL (1997-2006) EMISSION FACTORS FROM ANNUAL OPERATING REPORTS FOR THE NO. 2 BARK BOILER
BUCKEYE ENERGY PROJECT PROJECT, BUCKEYE FLORIDA

Source Description	EU ID	Annual Operation (hr/yr)	Annual Fuel Usage	Factor Units	Pollutant Emission Factors											
					SO_2	NO_x	CO	PM	PM_{10}	$PM_{2.5}$	VOC	TRS	SAM	Lead	Mercury	Fluoride
No. 2 Bark Boiler	019															
1996 Actual Emission Factors																
- *No. 6 Fuel Oil*		8,322	162.26 x10^3 gal	lb/10^3 gal	235.5 [l]	55.0 [m]	5.0 [m]	-- [q]	-- [q]	--	0.28 [m]	--	--	0.0018 [p]	--	--
- *Wood/Bark*			218,395 tons dry wood	lb/ton dry wood	0.024 [r]	1.8 [r]	40.0 [m]	67.4 [s]	54.6 [t]	--	0.31 [r]	--	--	0.0012 [p]	--	--
1997 Actual Emission Factors																
- *No. 6 Fuel Oil*		7,733	206.24 x10^3 gal	lb/10^3 gal	235.5 [l]	55.0 [m]	5.0 [m]	-- [q]	-- [q]	--	0.28 [m]	--	--	0.0018 [p]	--	--
- *Wood/Bark*			161,504 tons dry wood	lb/ton dry wood	0.024 [r]	1.8 [r]	40.0 [m]	67.0 [s]	58.2 [t]	--	0.31 [r]	--	--	0.0012 [p]	--	--
1998 Actual Emission Factors																
- *No. 6 Fuel Oil*		8,247	295.33 x10^3 gal	lb/10^3 gal	235.5 [l]	55.0 [m]	5.0 [m]	-- [q]	-- [q]	--	0.28 [m]	--	--	0.0018 [p]	--	--
- *Wood/Bark*			221,660 tons dry wood	lb/ton dry wood	0.024 [r]	1.8 [r]	40.0 [m]	71.8 [s]	58.1 [t]	--	0.31 [r]	--	--	0.0012 [p]	--	--
1999 Actual Emission Factors																
- *No. 6 Fuel Oil*		8,277	259.80 x10^3 gal	lb/10^3 gal	235.5 [l]	55.0 [m]	5.0 [m]	-- [q]	-- [q]	--	0.28 [m]	--	--	0.0018 [p]	--	--
- *Wood/Bark*			224,824 tons dry wood	lb/ton dry wood	0.024 [r]	1.8 [r]	40.0 [m]	84.5 [s]	68.4 [t]	--	0.31 [r]	--	--	0.0012 [p]	--	--
2000 Actual Emission Factors																
- *No. 6 Fuel Oil*		8,450	236.70 x10^3 gal	lb/10^3 gal	235.5 [l]	47.0 [d]	5.0 [d]	1.3 [o]	1.1 [n]	--	1.28 [e]	--	--	0.00151 [k]	--	--
- *Wood/Bark*			228,742 tons dry wood	lb/ton dry wood	0.09 [a]	3.0 [b]	27.2 [b]	1.792 [u]	1.756 [c]	--	0.544 [r]	--	--	0.000448	--	--
2001 Actual Emission Factors																
- *No. 6 Fuel Oil*		7,602	405.24 x10^3 gal	lb/10^3 gal	235.5 [l]	47.0 [d]	-- [j]	1.3 [o]	-- [j]	--	-- [j]	--	--	--	--	--
- *Wood/Bark*			205,374 tons dry wood	lb/ton dry wood	0.09 [a]	3.0 [b]	27.2 [b]	2.0 [u]	1.96 [c]	--	0.544 [i]	--	--	--	--	--
2002 Actual Emission Factors																
- *No. 6 Fuel Oil*		7,759	563.26 x10^3 gal	lb/10^3 gal	235.5 [l]	47.0 [d]	-- [j]	1.3 [o]	-- [j]	--	-- [j]	--	--	--	--	--
- *Wood/Bark*			220,822 tons dry wood	lb/ton dry wood	0.09 [a]	3.0 [b]	27.2 [b]	2.0 [u]	1.96 [c]	--	0.544 [i]	--	--	--	--	--
2003 Actual Emission Factors																
- *No. 6 Fuel Oil*		8,294	847.80 x10^3 gal	lb/10^3 gal	235.5 [l]	47.0 [d]	-- [j]	1.3 [o]	-- [j]	--	-- [j]	--	--	--	--	--
- *Wood/Bark*			213,177 tons dry wood	lb/ton dry wood	0.09 [a]	3.0 [b]	27.2 [b]	2.1 [u]	2.02 [c]	--	0.544 [i]	--	--	--	--	--
2004 Actual Emission Factors																
- *No. 6 Fuel Oil*		8,423	468.32 x10^3 gal	lb/10^3 gal	235.5 [l]	47.0 [d]	-- [j]	1.3 [o]	-- [j]	--	-- [j]	--	--	--	--	--
- *Wood/Bark*			223,456 tons dry wood	lb/ton dry wood	0.09 [a]	3.0 [b]	27.2 [b]	2.0 [u]	1.96 [c]	--	0.544 [i]	--	--	--	--	--
2005 Actual Emission Factors																
- *No. 6 Fuel Oil*		8,419	530.09 x10^3 gal	lb/10^3 gal	235.5 [l]	47.0 [d]	-- [j]	1.3 [o]	-- [j]	--	-- [j]	--	--	--	--	--
- *Wood/Bark*			224,906 tons dry wood	lb/ton dry wood	0.24 [f]	3.5 [g]	24.0 [b]	2.1 [u]	2.04 [h]	--	0.544 [g]	--	--	--	--	--
2006 Actual Emission Factors																
- *No. 6 Fuel Oil*		8,495	285.42 x10^3 gal	lb/10^3 gal	235.5 [l]	47.0 [d]	-- [j]	1.3 [o]	1.1 [n]	--	-- [j]	--	--	--	--	--
- *Wood/Bark*			229,048 tons dry wood	lb/ton dry wood	0.24 [f]	3.5 [g]	24.0 [b]	2.1 [u]	2.07 [h]	--	0.544 [g]	--	--	--	--	--

[a] AP-42 Table 1.6-2 and 40% removal in scrubber.
[b] AP-42 Table 1.6-2.
[c] AP-42 Table 1.6-7. 98% of PM is PM10.
[d] AP-42 Table 1.3-1. Assume max sulfur content of 2.5%.
[e] AP-42 Table 1.3-3. Assume max sulfur content of 2.5%.
[f] NCASI Technical Bulletin #884. Assume 40% removal in scrubber.
[g] NCASI Technical Bulletin #884.
[h] NCASI Technical Bulletin #884, Table 9.6b, 98% of PM is PM10.
[i] NCASI Environmental Research Handbook 3-02.
[j] Below threshold.
[k] AP-42 Table 1.3-11.
[l] AP-42 Table 1.3-1. Assume max sulfur content of 2.5% and 40% removal in scrubber.
[m] AP-42.
[n] AP-42 Table 1.3-5. Assume 86% of PM is PM10.
[o] AP-42 Table 1.3-1. Assume max sulfur content of 2.5% and 95% removal in scrubber.
[p] NCASI Technical Bulletin #650.
[q] Included in stack test data/defer to major fuel.
[r] NCASI Technical Bulletin #646.
[s] Average of last three stack tests x 1.15.
[t] AP-42 Table 1.6-10. Assume 87% of PM is PM10.
[u] Average of last three stack tests.

TABLE A-30
REVISED EMISSION FACTORS USED TO DETERMINE ACTUAL ANNUAL EMISSIONS (1997-2006) FOR THE NO. 2 BARK BOILER
BUCKEYE ENERGY PROJECT PROJECT, BUCKEYE FLORIDA

Source Description	EU ID	Annual Operation (hr/yr)	Annual Fuel Usage	Factor Units	Pollutant Emission Factors											
					SO_2	NO_x	CO	PM	PM_{10}	$PM_{2.5}$	VOC	TRS	SAM	Lead	Mercury	Fluoride
<u>No. 2 Bark Boiler</u>	019															
1997 Actual Emission Factors																
- *No. 6 Fuel Oil - 2.5% Sulfur*		7,733	206.24 x10^3 gal	lb/10^3 gal	235.5 [A]	47.0 [A]	5.0 [A]	-- [B]	-- [B]	-- [B]	0.28 [D]	--	10.4 [K]	0.0015 [E]	1.1E-04 [E]	3.7E-02 [E]
- *Wood/Bark*			161,504 tons dry wood	lb/ton dry wood	0.27 [G]	4.0 [G]	10.8 [G]	61.59 [I, J]	60.35 [F, J]	60.35 [F, J]	0.612 [G]	--	--	7.2E-04 [H]	1.22E-05 [H]	--
1998 Actual Emission Factors																
- *No. 6 Fuel Oil - 2.5% Sulfur*		8,247	295.33 x10^3 gal	lb/10^3 gal	235.5 [A]	47.0 [A]	5.0 [A]	-- [B]	-- [B]	-- [B]	0.28 [D]	--	10.4 [K]	0.0015 [E]	1.1E-04 [E]	3.7E-02 [E]
- *Wood/Bark*			221,660 tons dry wood	lb/ton dry wood	0.27 [G]	4.0 [G]	10.8 [G]	66.21 [I, J]	64.89 [F, J]	64.89 [F, J]	0.612 [G]	--	--	7.2E-04 [H]	1.22E-05 [H]	--
1999 Actual Emission Factors																
- *No. 6 Fuel Oil - 2.5% Sulfur*		8,277	259.80 x10^3 gal	lb/10^3 gal	235.5 [A]	47.0 [A]	5.0 [A]	-- [B]	-- [B]	-- [B]	0.28 [D]	--	10.4 [K]	0.0015 [E]	1.1E-04 [E]	3.7E-02 [E]
- *Wood/Bark*			224,824 tons dry wood	lb/ton dry wood	0.27 [G]	4.0 [G]	10.8 [G]	67.94 [I, J]	66.58 [F, J]	66.58 [F, J]	0.612 [G]	--	--	7.2E-04 [H]	1.22E-05 [H]	--
2000 Actual Emission Factors																
- *No. 6 Fuel Oil - 1.7% Sulfur*		8,450	236.70 x10^3 gal	lb/10^3 gal	160.1 [A]	47.0 [A]	5.0 [A]	0.94 [A]	0.94 [C]	0.91 [C]	0.28 [D]	--	7.0 [K]	0.0015 [E]	1.1E-04 [E]	3.7E-02 [E]
- *Wood/Bark*			228,742 tons dry wood	lb/ton dry wood	0.27 [G]	4.0 [G]	10.8 [G]	70.99 [I, J]	69.57 [F, J]	69.57 [F, J]	0.612 [G]	--	--	7.2E-04 [H]	1.22E-05 [H]	--
2001 Actual Emission Factors																
- *No. 6 Fuel Oil - 1.8% Sulfur*		7,602	405.24 x10^3 gal	lb/10^3 gal	169.6 [A]	47.0 [A]	5.0 [A]	0.99 [A]	0.99 [C]	0.96 [C]	0.28 [D]	--	7.5 [K]	0.0015 [E]	1.1E-04 [E]	3.7E-02 [E]
- *Wood/Bark*			205,374 tons dry wood	lb/ton dry wood	0.27 [G]	4.0 [G]	10.8 [G]	73.42 [I, J]	71.95 [F, J]	71.95 [F, J]	0.612 [G]	--	--	7.2E-04 [H]	1.22E-05 [H]	--
2002 Actual Emission Factors																
- *No. 6 Fuel Oil - 1.9% Sulfur*		7,759	563.26 x10^3 gal	lb/10^3 gal	179.0 [A]	47.0 [A]	5.0 [A]	1.03 [A]	1.03 [C]	1.00 [C]	0.28 [D]	--	7.9 [K]	0.0015 [E]	1.1E-04 [E]	3.7E-02 [E]
- *Wood/Bark*			220,822 tons dry wood	lb/ton dry wood	0.27 [G]	4.0 [G]	10.8 [G]	74.37 [I, J]	72.89 [F, J]	72.89 [F, J]	0.612 [G]	--	--	7.2E-04 [H]	1.22E-05 [H]	--
2003 Actual Emission Factors																
- *No. 6 Fuel Oil - 1.6% Sulfur*		8,294	847.80 x10^3 gal	lb/10^3 gal	150.7 [A]	47.0 [A]	5.0 [A]	0.90 [A]	0.90 [C]	0.87 [C]	0.28 [D]	--	6.6 [K]	0.0015 [E]	1.1E-04 [E]	3.7E-02 [E]
- *Wood/Bark*			213,177 tons dry wood	lb/ton dry wood	0.27 [G]	4.0 [G]	10.8 [G]	74.57 [I, J]	73.08 [F, J]	73.08 [F, J]	0.612 [G]	--	--	7.2E-04 [H]	1.22E-05 [H]	--
2004 Actual Emission Factors																
- *No. 6 Fuel Oil - 1.8% Sulfur*		8,423	468.32 x10^3 gal	lb/10^3 gal	169.6 [A]	47.0 [A]	5.0 [A]	0.99 [A]	0.99 [C]	0.96 [C]	0.28 [D]	--	7.5 [K]	0.0015 [E]	1.1E-04 [E]	3.7E-02 [E]
- *Wood/Bark*			223,456 tons dry wood	lb/ton dry wood	0.27 [G]	4.0 [G]	10.8 [G]	80.87 [I, J]	79.26 [F, J]	79.26 [F, J]	0.612 [G]	--	--	7.2E-04 [H]	1.22E-05 [H]	--
2005 Actual Emission Factors																
- *No. 6 Fuel Oil - 1.6% Sulfur*		8,419	530.09 x10^3 gal	lb/10^3 gal	150.7 [A]	47.0 [A]	5.0 [A]	0.90 [A]	0.90 [C]	0.87 [C]	0.28 [D]	--	6.6 [K]	0.0015 [E]	1.1E-04 [E]	3.7E-02 [E]
- *Wood/Bark*			224,906 tons dry wood	lb/ton dry wood	0.27 [G]	4.0 [G]	10.8 [G]	83.35 [I, J]	81.68 [F, J]	81.68 [F, J]	0.612 [G]	--	--	7.2E-04 [H]	1.22E-05 [H]	--
2006 Actual Emission Factors																
- *No. 6 Fuel Oil - 1.8% Sulfur*		8,495	285.42 x10^3 gal	lb/10^3 gal	169.6 [A]	47.0 [A]	5.0 [A]	0.99 [A]	0.99 [C]	0.96 [C]	0.28 [D]	--	7.5 [K]	0.0015 [E]	1.1E-04 [E]	3.7E-02 [E]
- *Wood/Bark*			229,048 tons dry wood	lb/ton dry wood	0.27 [G]	4.0 [G]	10.8 [G]	84.00 [I, J]	82.32 [F, J]	82.32 [F, J]	0.612 [G]	--	--	7.2E-04 [H]	1.22E-05 [H]	--

[A] AP-42, Table 1.3-1. Sulfur content reported in the AOR, 40% removal of SO_2 in scrubber, and 95% removal of PM in scrubber.
[B] Included in stack test data of major fuel (wood/bark).
[C] AP-42 Table 1.3-4 for scrubber control. 100% of PM emissions are PM_{10}, 97% of PM emissions are $PM_{2.5}$.
[D] AP-42 Table 1.3-3.
[E] AP-42 Table 1.3-11.
[F] AP-42 Table 1.6-5. Factor based on control with a wet scrubber. 98% of PM emissions are PM_{10} or $PM_{2.5}$.
[G] NCASI Technical Bulletin No. 884, Table 9.6a, for wet wood. Emissions based on a stoker boiler and 18 MMBtu/ton dry wood. Assume 40% removal of SO_2 in scrubber.
[H] NCASI Technical Bulletin No. 858, Table 20B. Emissions based wood-fired boilers with wet scrubbers and 18 MMBtu/ton dry wood.
[I] Based on 5-year average stack tests (see Table A-33).
[J] Units of lb/hr.
[K] Based on similar derivation of sulfuric acid mist from AP-42 for fuel oil: 3.6% of SO_2 becomes SO_3 then take into account the ratio of sulfuric acid mist and sulfur trioxide molecular weights (98/80).

TABLE A-31
BASELINE ACTUAL ANNUAL (1997-2006) EMISSIONS FOR THE NO. 2 BARK BOILER
BUCKEYE ENERGY PROJECT, BUCKEYE FLORIDA

Source Description	EU ID	Pollutant Emission Rate (TPY) SO_2	NO_x	CO	PM	PM_{10}	$PM_{2.5}$	VOC	TRS	SAM	Lead	Mercury	Fluoride
No. 2 Bark Boiler	019												
1997 Actual Emissions													
- Residual Oil		24.29	4.85	0.52	--	--	--	0.03	--	1.07	1.55E-04	1.17E-05	0.004
- Wood/Bark		21.80	319.78	872.12	238.12	233.36	233.36	49.42	--	--	5.81E-02	9.88E-04	--
- Total		***46.09***	***324.62***	***872.64***	***238.12***	***233.36***	***233.36***	***49.45***	--	***1.07***	***5.83E-02***	***1.00E-03***	***0.004***
1998 Actual Emissions													
- Residual Oil		34.77	6.94	0.74	--	--	--	0.04	--	1.53	2.21E-04	1.67E-05	0.005
- Wood/Bark		29.92	438.89	1,196.96	273.03	267.57	267.57	67.83	--	--	7.98E-02	1.36E-03	--
- Total		***64.70***	***445.83***	***1,197.70***	***273.03***	***267.57***	***267.57***	***67.87***	--	***1.53***	***8.00E-02***	***1.37E-03***	***0.005***
1999 Actual Emissions													
- Residual Oil		30.59	6.11	0.65	--	--	--	0.04	--	1.35	1.95E-04	1.47E-05	0.005
- Wood/Bark		30.35	445.15	1,214.05	281.17	275.55	275.55	68.80	--	--	8.09E-02	1.38E-03	--
- Total		***60.94***	***451.26***	***1,214.70***	***281.17***	***275.55***	***275.55***	***68.83***	--	***1.35***	***8.11E-02***	***1.39E-03***	***0.005***
2000 Actual Emissions													
- Residual Oil		18.95	5.56	0.59	0.11	0.11	0.11	0.03	--	0.83	1.78E-04	1.34E-05	0.004
- Wood/Bark		30.88	452.91	1,235.21	299.92	293.92	293.92	70.00	--	--	8.23E-02	1.40E-03	--
- Total		***49.83***	***458.47***	***1,235.80***	***300.03***	***294.03***	***294.03***	***70.03***	--	***0.83***	***8.25E-02***	***1.41E-03***	***0.004***
2001 Actual Emissions													
- Residual Oil		34.36	9.52	1.01	0.20	0.20	0.19	0.06	--	1.51	3.04E-04	2.29E-05	0.007
- Wood/Bark		27.73	406.64	1,109.02	279.07	273.49	273.49	62.84	--	--	7.39E-02	1.26E-03	--
- Total		***62.08***	***416.16***	***1,110.03***	***279.27***	***273.69***	***273.68***	***62.90***	--	***1.51***	***7.42E-02***	***1.28E-03***	***0.007***
2002 Actual Emissions													
- Residual Oil		50.41	13.24	1.41	0.29	0.29	0.28	0.08	--	2.22	4.22E-04	3.18E-05	0.010
- Wood/Bark		29.81	437.23	1,192.44	288.53	282.76	282.76	67.57	--	--	7.95E-02	1.35E-03	--
- Total		***80.22***	***450.46***	***1,193.85***	***288.82***	***283.05***	***283.04***	***67.65***	--	***2.22***	***7.99E-02***	***1.38E-03***	***0.010***
2003 Actual Emissions													
- Residual Oil		63.89	19.92	2.12	0.38	0.38	0.37	0.12	--	2.81	6.36E-04	4.79E-05	0.016
- Wood/Bark		28.78	422.09	1,151.16	309.26	303.07	303.07	65.23	--	--	7.67E-02	1.30E-03	--
- Total		***92.67***	***442.01***	***1,153.28***	***309.64***	***303.45***	***303.44***	***65.35***	--	***2.81***	***7.74E-02***	***1.35E-03***	***0.016***
2004 Actual Emissions													
- Residual Oil		39.70	11.01	1.17	0.23	0.23	0.22	0.07	--	1.75	3.51E-04	2.65E-05	0.009
- Wood/Bark		30.17	442.44	1,206.66	340.60	333.79	333.79	68.38	--	--	8.04E-02	1.37E-03	--
- Total		***69.87***	***453.45***	***1,207.83***	***340.83***	***334.02***	***334.01***	***68.44***	--	***1.75***	***8.08E-02***	***1.39E-03***	***0.009***
2005 Actual Emissions													
- Residual Oil		39.95	12.46	1.33	0.24	0.24	0.23	0.07	--	1.76	3.98E-04	3.00E-05	0.010
- Wood/Bark		30.36	445.31	1,214.49	350.85	343.83	343.83	68.82	--	--	8.10E-02	1.38E-03	--
- Total		***70.31***	***457.77***	***1,215.82***	***351.09***	***344.07***	***344.06***	***68.90***	--	***1.76***	***8.14E-02***	***1.41E-03***	***0.010***
2006 Actual Emissions													
- Residual Oil		24.20	6.71	0.71	0.14	0.14	0.14	0.04	--	1.06	2.14E-04	1.61E-05	0.005
- Wood/Bark		30.92	453.52	1,236.86	356.79	349.65	349.65	70.09	--	--	8.25E-02	1.40E-03	--
- Total		***55.12***	***460.22***	***1,237.57***	***356.93***	***349.80***	***349.79***	***70.13***	--	***1.06***	***8.27E-02***	***1.42E-03***	***0.005***

TABLE A-32
SUMMARY OF BASELINE 2-YEAR AVERAGE ACTUAL EMISSIONS (1997-2006) FOR THE NO. 2 BARK BOILER
BUCKEYE ENERGY PROJECT, BUCKEYE FLORIDA

Source Description	EU ID	Pollutant Emission Rate (TPY) SO_2	NO_x	CO	PM	PM_{10}	$PM_{2.5}$	VOC	TRS	SAM	Lead	Mercury	Fluoride
No. 2 Bark Boiler	019												
1997 - 1998 Average Emissions													
- Residual Oil		29.53	5.89	0.63	--	--	--	0.04	--	1.30	1.88E-04	1.42E-05	0.005
- Wood/Bark		25.86	379.33	1,034.54	255.58	250.47	250.47	58.62	--	--	6.90E-02	1.17E-03	--
- Total		***55.39***	***385.23***	***1,035.17***	***255.58***	***250.47***	***250.47***	***58.66***	--	***1.30***	***6.92E-02***	***1.19E-03***	***0.005***
1998 - 1999 Average Emissions													
- Residual Oil		32.68	6.52	0.69	--	--	--	0.04	--	1.44	2.08E-04	1.57E-05	0.005
- Wood/Bark		30.14	442.02	1,205.51	277.10	271.56	271.56	68.31	--	--	8.04E-02	1.37E-03	--
- Total		***62.82***	***448.54***	***1,206.20***	***277.10***	***271.56***	***271.56***	***68.35***	--	***1.44***	***8.06E-02***	***1.38E-03***	***0.005***
1999 - 2000 Average Emissions													
- Residual Oil		24.77	5.83	0.62	0.11	0.11	0.11	0.03	--	1.09	1.86E-04	1.40E-05	0.005
- Wood/Bark		30.62	449.03	1,224.63	290.54	284.73	284.73	69.40	--	--	8.16E-02	1.39E-03	--
- Total		***55.39***	***454.86***	***1,225.25***	***290.66***	***284.84***	***284.84***	***69.43***	--	***1.09***	***8.18E-02***	***1.40E-03***	***0.005***
2000 - 2001 Average Emissions													
- Residual Oil		26.65	7.54	0.80	0.16	0.16	0.15	0.04	--	1.17	2.41E-04	1.81E-05	0.006
- Wood/Bark		29.30	429.77	1,172.11	289.49	283.70	283.70	66.42	--	--	7.81E-02	1.33E-03	--
- Total		***55.96***	***437.32***	***1,172.92***	***289.65***	***283.86***	***283.86***	***66.46***	--	***1.17***	***7.84E-02***	***1.35E-03***	***0.006***
2001 - 2002 Average Emissions													
- Residual Oil		42.38	11.38	1.21	0.25	0.25	0.24	0.07	--	1.86	3.63E-04	2.74E-05	0.009
- Wood/Bark		28.77	421.93	1,150.73	283.80	278.12	278.12	65.21	--	--	7.67E-02	1.30E-03	--
- Total		***71.15***	***433.31***	***1,151.94***	***284.05***	***278.37***	***278.36***	***65.28***	--	***1.86***	***7.71E-02***	***1.33E-03***	***0.009***
2002 - 2003 Average Emissions													
- Residual Oil		57.15	16.58	1.76	0.34	0.34	0.33	0.10	--	2.51	5.29E-04	3.99E-05	0.013
- Wood/Bark		29.29	429.66	1,171.80	298.89	292.92	292.92	66.40	--	--	7.81E-02	1.33E-03	--
- Total		***86.44***	***446.24***	***1,173.56***	***299.23***	***293.25***	***293.24***	***66.50***	--	***2.51***	***7.86E-02***	***1.37E-03***	***0.013***
2003 - 2004 Average Emissions													
- Residual Oil		51.80	15.46	1.65	0.31	0.31	0.30	0.09	--	2.28	4.94E-04	3.72E-05	0.012
- Wood/Bark		29.47	432.27	1,178.91	324.93	318.43	318.43	66.80	--	--	7.86E-02	1.34E-03	--
- Total		***81.27***	***447.73***	***1,180.55***	***325.23***	***318.73***	***318.72***	***66.90***	--	***2.28***	***7.91E-02***	***1.37E-03***	***0.012***
2004 - 2005 Average Emissions													
- Residual Oil		39.83	11.73	1.25	0.23	0.23	0.23	0.07	--	1.75	3.74E-04	2.82E-05	0.009
- Wood/Bark		30.26	443.88	1,210.58	345.72	338.81	338.81	68.60	--	--	8.07E-02	1.37E-03	--
- Total		***70.09***	***455.61***	***1,211.82***	***345.96***	***339.04***	***339.04***	***68.67***	--	***1.75***	***8.11E-02***	***1.40E-03***	***0.009***
2005 - 2006 Average Emissions													
- Residual Oil		32.07	9.58	1.02	0.19	0.19	0.18	0.06	--	1.41	3.06E-04	2.30E-05	0.008
- Wood/Bark		30.64	449.41	1,225.68	353.82	346.74	346.74	69.45	--	--	8.17E-02	1.39E-03	--
- Total		***62.71***	***459.00***	***1,226.69***	***354.01***	***346.93***	***346.93***	***69.51***	--	***1.41***	***8.20E-02***	***1.41E-03***	***0.008***
		'02 - '03	'05 - '06	'05 - '06	'05 - '06	'05 - '06	'05 - '06	'05 - '06	--	'02 - '03	'05 - '06	'05 - '06	'02 - '03
Highest Consecutive 2-Year Average		**86.44**	**459.00**	**1,226.69**	**354.01**	**346.93**	**346.93**	**69.51**	--	**2.51**	**8.20E-02**	**1.41E-03**	**0.013**

TABLE A-33
STACK TESTS AND EMISSIONS DATA FOR THE NO. 2 BARK BOILER
BUCKEYE ENERGY PROJECT, BUCKEYE FLORIDA

Test Date	PM Emission Rate (lb/hr)	PM Averaging Period	PM Avg. Rate (lb/hr)
No. 2 Bark Boiler (EU 019)			
5/14/1993	84.63		
5/12/1994	63.93		
5/25/1995	56.77		
5/8/1996	53.87		
5/7/1997	65.13	1994-1998	61.59
4/28/1998	68.23	1995-1999	66.21
5/25/1999	87.07	1996-2000	67.94
4/13/2000	65.40	1997-2001	70.99
4/11/2001	69.10	1998-2002	73.42
4/17/2002	77.30	1999-2003	74.37
4/22/2003	73.00	2000-2004	74.57
4/22/2004	88.07	2001-2005	80.87
4/20/2005	96.90	2002-2006	83.35
5/3/2006	81.47	2003-2007	84.00
5/24/2007	80.57		

[a] Maximum permitted PM emission rate is 0.178 lb/MMBtu, or 106.73 lb/hr.

TABLE A-34
BASELINE ACTUAL OPERATING CONDITIONS FOR THE NO. 2 BARK BOILER
BUCKEYE ENERGY PROJECT, BUCKEYE FLORIDA

		Fuel Usage			Heat Input				
Year	Operating Hours (hours/yr)	No. 6 Fuel Oil (10^3 gal/yr)	No. 6 Fuel Oil (% Sulfur)	Wood/Bark, dry (TPY)	No. 6 Fuel Oil (MMBtu/yr)	Wood/Bark, dry (MMBtu/yr)	Total (MMBtu/yr)	Percent from No. 6 Fuel Oil	Percent from Wood/Bark
No. 2 Bark Boiler (EU 019)									
1997	7,733	206.2	2.5	161,504	30,111	2,584,064	2,614,175	1.2%	98.8%
1998	8,247	295.3	2.5	221,660	43,118	3,546,560	3,589,678	1.2%	98.8%
1999	8,277	259.8	2.5	224,824	37,930	3,597,184	3,635,114	1.0%	99.0%
2000	8,450	236.7	1.7	228,742	34,558	3,659,872	3,694,430	0.9%	99.1%
2001	7,602	405.2	1.8	205,374	59,165	3,285,986	3,345,151	1.8%	98.2%
2002	7,759	563.3	1.9	220,822	82,236	3,533,152	3,615,388	2.3%	97.7%
2003	8,294	847.8	1.6	213,177	123,779	3,410,832	3,534,611	3.5%	96.5%
2004	8,423	468.3	1.8	223,456	68,375	3,575,294	3,643,669	1.9%	98.1%
2005	8,419	530.1	1.6	224,906	77,393	3,598,495	3,675,888	2.1%	97.9%
2006	8,495	285.4	1.8	229,048	41,671	3,664,768	3,706,439	1.1%	98.9%
Maximum:	8,495	847.8	2.5	229,048	123,779	3,664,768	3,706,439	3.5%	99.1%
Average:	8,170	409.8	2.0	215,351	59,834	3,445,621	3,505,454	1.7%	98.3%
Minimum:	7,602	206.2	1.6	161,504	30,111	2,584,064	2,614,175	0.9%	96.5%

[a] Heat input values based on 146 MMBtu/10^3 gal for No. 6 Fuel Oil, and 16 MMBtu/ton of dry wood.

TABLE A-35
BASELINE ACTUAL ANNUAL (1997-2006) EMISSION FACTORS FROM ANNUAL OPERATING REPORTS FOR THE BLO SYSTEM
BUCKEYE ENERGY PROJECT PROJECT, BUCKEYE FLORIDA

Source Description	EU ID	Annual Operation (hr/yr)	Annual Fuel Usage	Factor Units	Pollutant Emission Factors											
					SO_2	NO_x	CO	PM	PM_{10}	$PM_{2.5}$	VOC	TRS	SAM	Lead	Mercury	Fluoride
BLO System	047															
1997 Actual Emission Factors																
Recovery Boiler No. 2	006	7,669	247,035 ton ADUP	lb/ton ADUP	--	--	--	--	--	--	--	--	--	--	--	--
Recovery Boiler No. 3	007	7,445	200,879 ton ADUP	lb/ton ADUP	--	--	--	--	--	--	--	--	--	--	--	--
1998 Actual Emission Factors																
Recovery Boiler No. 2	006	7,314	234,043 ton ADUP	lb/ton ADUP	--	--	--	--	--	--	--	--	--	--	--	--
Recovery Boiler No. 3	007	7,311	197,516 ton ADUP	lb/ton ADUP	--	--	--	--	--	--	--	--	--	--	--	--
1999 Actual Emission Factors																
Recovery Boiler No. 2	006	7,854	253,946 ton ADUP	lb/ton ADUP	--	--	--	--	--	--	--	--	--	--	--	--
Recovery Boiler No. 3	007	7,607	208,013 ton ADUP	lb/ton ADUP	--	--	--	--	--	--	--	--	--	--	--	--
2000 Actual Emission Factors																
Recovery Boiler No. 2	006	7,597	242,754 ton ADUP	lb/ton ADUP	--	--	--	--	--	--	0.15 [a]	0.0271 [a]	--	--	--	--
Recovery Boiler No. 3	007	7,995	214,986 ton ADUP	lb/ton ADUP	--	--	--	--	--	--	0.15 [a]	0.0271 [a]	--	--	--	--
2001 Actual Emission Factors																
Recovery Boiler No. 2	006	7,028	224,228 ton ADUP	lb/ton ADUP	--	--	--	--	--	--	0.15 [a]	0.0199 [a]	--	--	--	--
Recovery Boiler No. 3	007	7,556	203,596 ton ADUP	lb/ton ADUP	--	--	--	--	--	--	0.15 [a]	0.0199 [a]	--	--	--	--
2002 Actual Emission Factors																
Recovery Boiler No. 2	006	7,785	250,357 ton ADUP	lb/ton ADUP	--	--	--	--	--	--	0.15 [a]	0.0199 [a]	--	--	--	--
Recovery Boiler No. 3	007	7,974	215,394 ton ADUP	lb/ton ADUP	--	--	--	--	--	--	0.15 [a]	0.0199 [a]	--	--	--	--
2003 Actual Emission Factors																
Recovery Boiler No. 2	006	7,515	218,575 ton ADUP	lb/ton ADUP	--	--	--	--	--	--	0.15 [a]	0.0199 [a]	--	--	--	--
Recovery Boiler No. 3	007	8,057	204,145 ton ADUP	lb/ton ADUP	--	--	--	--	--	--	0.15 [a]	0.0199 [a]	--	--	--	--
2004 Actual Emission Factors																
Recovery Boiler No. 2	006	8,216	266,237 ton ADUP	lb/ton ADUP	--	--	--	--	--	--	0.15 [a]	--	--	--	--	--
Recovery Boiler No. 3	007	8,369	218,912 ton ADUP	lb/ton ADUP	--	--	--	--	--	--	0.15 [a]	--	--	--	--	--
2005 Actual Emission Factors																
Recovery Boiler No. 2	006	8,251	266,424 ton ADUP	lb/ton ADUP	--	--	--	--	--	--	--	--	--	--	--	--
Recovery Boiler No. 3	007	8,195	216,174 ton ADUP	lb/ton ADUP	--	--	--	--	--	--	--	--	--	--	--	--
2006 Actual Emission Factors																
Recovery Boiler No. 2	006	8,364	264,844 ton ADUP	lb/ton ADUP	--	--	--	--	--	--	--	--	--	--	--	--
Recovery Boiler No. 3	007	7,850	209,523 ton ADUP	lb/ton ADUP	--	--	--	--	--	--	--	--	--	--	--	--

[a] NCASI Technical Bulletin No. 701.

TABLE A-36
REVISED EMISSION FACTORS USED TO DETERMINE ACTUAL ANNUAL EMISSIONS (1997-2006) FOR THE BLO SYSTEM
BUCKEYE ENERGY PROJECT PROJECT, BUCKEYE FLORIDA

Source Description	EU ID	Annual Operation (hr/yr)	Annual Fuel Usage	Factor Units	Pollutant Emission Factors											
					SO_2	NO_x	CO	PM	PM_{10}	$PM_{2.5}$	VOC	TRS	SAM	Lead	Mercury	Fluoride
BLO System																
1997 Actual Emission Factors																
- No. 2 Recovery Boiler	006	7,669	247,035 ton ADUP	lb/ton ADUP	--	--	--	7.4E-03 [A]	7.4E-03 [B]	7.4E-03 [B]	0.18 [A]	0.14 [C]	--	--	--	--
- No. 3 Recovery Boiler	007	7,445	200,879 ton ADUP	lb/ton ADUP	--	--	--	7.4E-03 [A]	7.4E-03 [B]	7.4E-03 [B]	0.18 [A]	0.14 [C]	--	--	--	--
1998 Actual Emission Factors																
- No. 2 Recovery Boiler	006	7,314	234,043 ton ADUP	lb/ton ADUP	--	--	--	7.4E-03 [A]	7.4E-03 [B]	7.4E-03 [B]	0.18 [A]	0.14 [C]	--	--	--	--
- No. 3 Recovery Boiler	007	7,311	197,516 ton ADUP	lb/ton ADUP	--	--	--	7.4E-03 [A]	7.4E-03 [B]	7.4E-03 [B]	0.18 [A]	0.14 [C]	--	--	--	--
1999 Actual Emission Factors																
- No. 2 Recovery Boiler	006	7,854	253,946 ton ADUP	lb/ton ADUP	--	--	--	7.4E-03 [A]	7.4E-03 [B]	7.4E-03 [B]	0.18 [A]	0.14 [C]	--	--	--	--
- No. 3 Recovery Boiler	007	7,607	208,013 ton ADUP	lb/ton ADUP	--	--	--	7.4E-03 [A]	7.4E-03 [B]	7.4E-03 [B]	0.18 [A]	0.14 [C]	--	--	--	--
2000 Actual Emission Factors																
- No. 2 Recovery Boiler	006	7,597	242,754 ton ADUP	lb/ton ADUP	--	--	--	7.4E-03 [A]	7.4E-03 [B]	7.4E-03 [B]	0.18 [A]	0.14 [C]	--	--	--	--
- No. 3 Recovery Boiler	007	7,995	214,986 ton ADUP	lb/ton ADUP	--	--	--	7.4E-03 [A]	7.4E-03 [B]	7.4E-03 [B]	0.18 [A]	0.14 [C]	--	--	--	--
2001 Actual Emission Factors																
- No. 2 Recovery Boiler	006	7,028	224,228 ton ADUP	lb/ton ADUP	--	--	--	7.4E-03 [A]	7.4E-03 [B]	7.4E-03 [B]	0.18 [A]	0.14 [C]	--	--	--	--
- No. 3 Recovery Boiler	007	7,556	203,596 ton ADUP	lb/ton ADUP	--	--	--	7.4E-03 [A]	7.4E-03 [B]	7.4E-03 [B]	0.18 [A]	0.14 [C]	--	--	--	--
2002 Actual Emission Factors																
- No. 2 Recovery Boiler	006	7,785	250,357 ton ADUP	lb/ton ADUP	--	--	--	7.4E-03 [A]	7.4E-03 [B]	7.4E-03 [B]	0.18 [A]	0.14 [C]	--	--	--	--
- No. 3 Recovery Boiler	007	7,974	215,394 ton ADUP	lb/ton ADUP	--	--	--	7.4E-03 [A]	7.4E-03 [B]	7.4E-03 [B]	0.18 [A]	0.14 [C]	--	--	--	--
2003 Actual Emission Factors																
- No. 2 Recovery Boiler	006	7,515	218,575 ton ADUP	lb/ton ADUP	--	--	--	7.4E-03 [A]	7.4E-03 [B]	7.4E-03 [B]	0.18 [A]	0.14 [C]	--	--	--	--
- No. 3 Recovery Boiler	007	8,057	204,145 ton ADUP	lb/ton ADUP	--	--	--	7.4E-03 [A]	7.4E-03 [B]	7.4E-03 [B]	0.18 [A]	0.14 [C]	--	--	--	--
2004 Actual Emission Factors																
- No. 2 Recovery Boiler	006	8,216	266,237 ton ADUP	lb/ton ADUP	--	--	--	7.4E-03 [A]	7.4E-03 [B]	7.4E-03 [B]	0.18 [A]	0.14 [C]	--	--	--	--
- No. 3 Recovery Boiler	007	8,369	218,912 ton ADUP	lb/ton ADUP	--	--	--	7.4E-03 [A]	7.4E-03 [B]	7.4E-03 [B]	0.18 [A]	0.14 [C]	--	--	--	--
2005 Actual Emission Factors																
- No. 2 Recovery Boiler	006	8,251	266,424 ton ADUP	lb/ton ADUP	--	--	--	7.4E-03 [A]	7.4E-03 [B]	7.4E-03 [B]	0.18 [A]	0.14 [C]	--	--	--	--
- No. 3 Recovery Boiler	007	8,195	216,174 ton ADUP	lb/ton ADUP	--	--	--	7.4E-03 [A]	7.4E-03 [B]	7.4E-03 [B]	0.18 [A]	0.14 [C]	--	--	--	--
2006 Actual Emission Factors																
- No. 2 Recovery Boiler	006	8,364	264,844 ton ADUP	lb/ton ADUP	--	--	--	7.4E-03 [A]	7.4E-03 [B]	7.4E-03 [B]	0.18 [A]	0.14 [C]	--	--	--	--
- No. 3 Recovery Boiler	007	7,850	209,523 ton ADUP	lb/ton ADUP	--	--	--	7.4E-03 [A]	7.4E-03 [B]	7.4E-03 [B]	0.18 [A]	0.14 [C]	--	--	--	--

[A] NCASI Technical Bulletin No. 884, Table 4.10, based on mean values and assuming that 3,000 lbs BLS = 1 ton ADUP.

[B] Assuming 100% of PM is PM_{10} or $PM_{2.5}$.

[C] NCASI Technical Bulletin No. 858, Table 12, based on mean values, the sum of each TRS species, and assuming that 1.5 ton BLS = 1 ton ADUP.

TABLE A-37
BASELINE ACTUAL ANNUAL (1997-2006) EMISSIONS FOR THE NO. 2 BARK BOILER
BUCKEYE ENERGY PROJECT, BUCKEYE FLORIDA

Source Description	EU ID	Pollutant Emission Rate (TPY)											
		SO_2	NO_x	CO	PM	PM_{10}	$PM_{2.5}$	VOC	TRS	SAM	Lead	Mercury	Fluoride
BLO System													
1997 Actual Emissions													
- BLO System for No. 2 Recovery Boiler	*006*	--	--	--	0.91	0.91	0.91	22.23	17.08	--	--	--	--
- BLO System for No. 3 Recovery Boiler	*007*	--	--	--	0.74	0.74	0.74	18.08	13.89	--	--	--	--
- Total		--	--	--	**1.65**	**1.65**	**1.65**	**40.31**	**30.97**	--	--	--	--
1998 Actual Emissions													
- BLO System for No. 2 Recovery Boiler	*006*	--	--	--	0.86	0.86	0.86	21.06	16.18	--	--	--	--
- BLO System for No. 3 Recovery Boiler	*007*	--	--	--	0.73	0.73	0.73	17.78	13.66	--	--	--	--
- Total		--	--	--	**1.59**	**1.59**	**1.59**	**38.84**	**29.84**	--	--	--	--
1999 Actual Emissions													
- BLO System for No. 2 Recovery Boiler	*006*	--	--	--	0.93	0.93	0.93	22.86	17.56	--	--	--	--
- BLO System for No. 3 Recovery Boiler	*007*	--	--	--	0.76	0.76	0.76	18.72	14.38	--	--	--	--
- Total		--	--	--	**1.70**	**1.70**	**1.70**	**41.58**	**31.94**	--	--	--	--
2000 Actual Emissions													
- BLO System for No. 2 Recovery Boiler	*006*	--	--	--	0.89	0.89	0.89	21.85	16.79	--	--	--	--
- BLO System for No. 3 Recovery Boiler	*007*	--	--	--	0.79	0.79	0.79	19.35	14.87	--	--	--	--
- Total		--	--	--	**1.68**	**1.68**	**1.68**	**41.20**	**31.65**	--	--	--	--
2001 Actual Emissions													
- BLO System for No. 2 Recovery Boiler	*006*	--	--	--	0.82	0.82	0.82	20.18	15.51	--	--	--	--
- BLO System for No. 3 Recovery Boiler	*007*	--	--	--	0.75	0.75	0.75	18.32	14.08	--	--	--	--
- Total		--	--	--	**1.57**	**1.57**	**1.57**	**38.50**	**29.58**	--	--	--	--
2002 Actual Emissions													
- BLO System for No. 2 Recovery Boiler	*006*	--	--	--	0.92	0.92	0.92	22.53	17.31	--	--	--	--
- BLO System for No. 3 Recovery Boiler	*007*	--	--	--	0.79	0.79	0.79	19.39	14.89	--	--	--	--
- Total		--	--	--	**1.71**	**1.71**	**1.71**	**41.92**	**32.21**	--	--	--	--
2003 Actual Emissions													
- BLO System for No. 2 Recovery Boiler	*006*	--	--	--	0.80	0.80	0.80	19.67	15.11	--	--	--	--
- BLO System for No. 3 Recovery Boiler	*007*	--	--	--	0.75	0.75	0.75	18.37	14.12	--	--	--	--
- Total		--	--	--	**1.55**	**1.55**	**1.55**	**38.04**	**29.23**	--	--	--	--
2004 Actual Emissions													
- BLO System for No. 2 Recovery Boiler	*006*	--	--	--	0.98	0.98	0.98	23.96	18.41	--	--	--	--
- BLO System for No. 3 Recovery Boiler	*007*	--	--	--	0.80	0.80	0.80	19.70	15.14	--	--	--	--
- Total		--	--	--	**1.78**	**1.78**	**1.78**	**43.66**	**33.55**	--	--	--	--
2005 Actual Emissions													
- BLO System for No. 2 Recovery Boiler	*006*	--	--	--	0.98	0.98	0.98	23.98	18.42	--	--	--	--
- BLO System for No. 3 Recovery Boiler	*007*	--	--	--	0.79	0.79	0.79	19.46	14.95	--	--	--	--
- Total		--	--	--	**1.77**	**1.77**	**1.77**	**43.43**	**33.37**	--	--	--	--
2006 Actual Emissions													
- BLO System for No. 2 Recovery Boiler	*006*	--	--	--	0.97	0.97	0.97	23.84	18.31	--	--	--	--
- BLO System for No. 3 Recovery Boiler	*007*	--	--	--	0.77	0.77	0.77	18.86	14.49	--	--	--	--
- Total		--	--	--	**1.74**	**1.74**	**1.74**	**42.69**	**32.80**	--	--	--	--

TABLE A-38
SUMMARY OF BASELINE 2-YEAR AVERAGE ACTUAL EMISSIONS (1997-2006) FOR THE BLO SYSTEM
BUCKEYE ENERGY PROJECT, BUCKEYE FLORIDA

Source Description	EU ID	Pollutant Emission Rate (TPY)											
		SO_2	NO_x	CO	PM	PM_{10}	$PM_{2.5}$	VOC	TRS	SAM	Lead	Mercury	Fluoride
BLO System													
1997 - 1998 Average Emissions													
- BLO System for No. 2 Recovery Boiler	*006*	--	--	--	0.88	0.88	0.88	21.65	16.63	--	--	--	--
- BLO System for No. 3 Recovery Boiler	*007*	--	--	--	0.73	0.73	0.73	17.93	13.77	--	--	--	--
- Total		**--**	**--**	**--**	**1.62**	**1.62**	**1.62**	**39.58**	**30.41**	**--**	**--**	**--**	**--**
1998 - 1999 Average Emissions													
- BLO System for No. 2 Recovery Boiler	*006*	--	--	--	0.90	0.90	0.90	21.96	16.87	--	--	--	--
- BLO System for No. 3 Recovery Boiler	*007*	--	--	--	0.75	0.75	0.75	18.25	14.02	--	--	--	--
- Total		**--**	**--**	**--**	**1.64**	**1.64**	**1.64**	**40.21**	**30.89**	**--**	**--**	**--**	**--**
1999 - 2000 Average Emissions													
- BLO System for No. 2 Recovery Boiler	*006*	--	--	--	0.91	0.91	0.91	22.35	17.17	--	--	--	--
- BLO System for No. 3 Recovery Boiler	*007*	--	--	--	0.78	0.78	0.78	19.03	14.63	--	--	--	--
- Total		**--**	**--**	**--**	**1.69**	**1.69**	**1.69**	**41.39**	**31.80**	**--**	**--**	**--**	**--**
2000 - 2001 Average Emissions													
- BLO System for No. 2 Recovery Boiler	*006*	--	--	--	0.86	0.86	0.86	21.01	16.15	--	--	--	--
- BLO System for No. 3 Recovery Boiler	*007*	--	--	--	0.77	0.77	0.77	18.84	14.47	--	--	--	--
- Total		**--**	**--**	**--**	**1.63**	**1.63**	**1.63**	**39.85**	**30.62**	**--**	**--**	**--**	**--**
2001 - 2002 Average Emissions													
- BLO System for No. 2 Recovery Boiler	*006*	--	--	--	0.87	0.87	0.87	21.36	16.41	--	--	--	--
- BLO System for No. 3 Recovery Boiler	*007*	--	--	--	0.77	0.77	0.77	18.85	14.49	--	--	--	--
- Total		**--**	**--**	**--**	**1.64**	**1.64**	**1.64**	**40.21**	**30.90**	**--**	**--**	**--**	**--**
2002 - 2003 Average Emissions													
- BLO System for No. 2 Recovery Boiler	*006*	--	--	--	0.86	0.86	0.86	21.10	16.21	--	--	--	--
- BLO System for No. 3 Recovery Boiler	*007*	--	--	--	0.77	0.77	0.77	18.88	14.51	--	--	--	--
- Total		**--**	**--**	**--**	**1.63**	**1.63**	**1.63**	**39.98**	**30.72**	**--**	**--**	**--**	**--**
2003 - 2004 Average Emissions													
- BLO System for No. 2 Recovery Boiler	*006*	--	--	--	0.89	0.89	0.89	21.82	16.76	--	--	--	--
- BLO System for No. 3 Recovery Boiler	*007*	--	--	--	0.78	0.78	0.78	19.04	14.63	--	--	--	--
- Total		**--**	**--**	**--**	**1.67**	**1.67**	**1.67**	**40.85**	**31.39**	**--**	**--**	**--**	**--**
2004 - 2005 Average Emissions													
- BLO System for No. 2 Recovery Boiler	*006*	--	--	--	0.98	0.98	0.98	23.97	18.42	--	--	--	--
- BLO System for No. 3 Recovery Boiler	*007*	--	--	--	0.80	0.80	0.80	19.58	15.04	--	--	--	--
- Total		**--**	**--**	**--**	**1.78**	**1.78**	**1.78**	**43.55**	**33.46**	**--**	**--**	**--**	**--**
2005 - 2006 Average Emissions													
- BLO System for No. 2 Recovery Boiler	*006*	--	--	--	0.98	0.98	0.98	23.91	18.37	--	--	--	--
- BLO System for No. 3 Recovery Boiler	*007*	--	--	--	0.78	0.78	0.78	19.16	14.72	--	--	--	--
- Total		**--**	**--**	**--**	**1.76**	**1.76**	**1.76**	**43.06**	**33.09**	**--**	**--**	**--**	**--**
		--	**--**	**--**	**'04 - '05**	**'04 - '05**	**'04 - '05**	**'04 - '05**	**'04 - '05**	**--**	**--**	**--**	**--**
Highest Consecutive 2-Year Average		**--**	**--**	**--**	**1.78**	**1.78**	**1.78**	**43.55**	**33.46**	**--**	**--**	**--**	**--**

TABLE A-39
BASELINE ACTUAL ANNUAL (1997-2006) EMISSIONS
BUCKEYE ENERGY PROJECT, BUCKEYE FLORIDA

Source Description	EU ID	Pollutant Emission Rate (TPY) SO$_2$	NO$_x$	CO	PM	PM$_{10}$	PM$_{2.5}$	VOC	TRS	SAM	Lead	Mercury	Fluoride
1997 Actual Emissions													
- No. 2 Recovery Boiler	*006*	492.39	210.11	225.05	149.24	114.62	79.69	38.96	13.42	21.67	4.13E-03	3.18E-05	0.006
- BLO System for No. 2 Recovery Boiler		--	--	--	0.91	0.91	0.91	22.23	17.08	--	--	--	--
- No. 3 Recovery Boiler	*007*	478.72	180.23	184.00	67.55	51.87	36.07	31.73	13.77	21.06	3.66E-03	4.84E-05	0.013
- BLO System for No. 3 Recovery Boiler		--	--	--	0.74	0.74	0.74	18.08	13.89	--	--	--	--
- No. 1 Power Boiler	*002*	1.66	58.00	17.36	1.67	1.66	1.63	1.14	--	0.07	1.09E-04	5.41E-05	1.46E-04
- No. 2 Power Boiler	*003*	0.16	72.50	21.75	1.97	1.97	1.97	1.42	--	--	1.29E-04	6.73E-05	--
- No. 1 Bark Boiler	*004*	67.35	201.60	521.38	130.76	128.15	128.15	29.54	--	2.96	3.50E-02	6.16E-04	0.009
- No. 2 Bark Boiler	*019*	46.09	324.62	872.64	238.12	233.36	233.36	49.45	--	1.07	5.83E-02	1.00E-03	0.004
- Total		*1,086.37*	*1,047.05*	*1,842.18*	*590.96*	*533.27*	*482.51*	*192.56*	*58.17*	*46.83*	*1.01E-01*	*1.82E-03*	*0.032*
1998 Actual Emissions													
- No. 2 Recovery Boiler	*006*	469.26	199.39	213.25	143.12	109.91	76.42	36.91	13.53	20.65	3.92E-03	3.10E-05	0.006
- BLO System for No. 2 Recovery Boiler		--	--	--	0.86	0.86	0.86	21.06	16.18	--	--	--	--
- No. 3 Recovery Boiler	*007*	507.48	181.62	181.39	65.73	50.47	35.09	31.23	14.62	22.33	3.74E-03	5.82E-05	0.016
- BLO System for No. 3 Recovery Boiler		--	--	--	0.73	0.73	0.73	17.78	13.66	--	--	--	--
- No. 1 Power Boiler	*002*	43.06	76.23	21.87	4.79	4.39	3.53	1.43	--	1.89	2.92E-04	7.84E-05	0.004
- No. 2 Power Boiler	*003*	0.16	74.37	22.31	2.02	2.02	2.02	1.46	--	--	1.33E-04	6.91E-05	--
- No. 1 Bark Boiler	*004*	55.10	175.89	456.84	134.63	131.94	131.94	25.89	--	2.42	3.07E-02	5.38E-04	0.007
- No. 2 Bark Boiler	*019*	64.70	445.83	1,197.70	273.03	267.57	267.57	67.87	--	1.53	8.00E-02	1.37E-03	0.005
- Total		*1,139.76*	*1,153.32*	*2,093.37*	*624.91*	*567.89*	*518.16*	*203.62*	*58.00*	*48.82*	*1.19E-01*	*2.15E-03*	*0.039*
1999 Actual Emissions													
- No. 2 Recovery Boiler	*006*	503.67	215.69	231.32	137.73	105.77	73.55	40.04	15.32	22.16	4.23E-03	3.20E-05	0.006
- BLO System for No. 2 Recovery Boiler		--	--	--	0.93	0.93	0.93	22.86	17.56	--	--	--	--
- No. 3 Recovery Boiler	*007*	446.83	180.78	189.91	63.51	48.77	33.91	32.83	11.41	19.66	3.60E-03	3.61E-05	0.009
- BLO System for No. 3 Recovery Boiler		--	--	--	0.76	0.76	0.76	18.72	14.38	--	--	--	--
- No. 1 Power Boiler	*002*	25.40	76.17	22.27	3.67	3.43	2.93	1.45	--	1.11	2.28E-04	7.52E-05	0.002
- No. 2 Power Boiler	*003*	0.12	56.70	17.01	1.54	1.54	1.54	1.11	--	--	1.01E-04	5.27E-05	--
- No. 1 Bark Boiler	*004*	74.26	180.66	459.86	136.80	134.06	134.06	26.06	--	3.27	3.10E-02	5.50E-04	0.010
- No. 2 Bark Boiler	*019*	60.94	451.26	1,214.70	281.17	275.55	275.55	68.83	--	1.35	8.11E-02	1.39E-03	0.005
- Total		*1,111.23*	*1,161.25*	*2,135.07*	*626.11*	*570.82*	*523.23*	*211.91*	*58.67*	*47.55*	*1.20E-01*	*2.14E-03*	*0.032*
2000 Actual Emissions													
- No. 2 Recovery Boiler	*006*	466.45	207.17	221.23	136.41	104.76	72.84	38.29	14.20	20.52	4.08E-03	3.30E-05	0.007
- BLO System for No. 2 Recovery Boiler		--	--	--	0.89	0.89	0.89	21.85	16.79	--	--	--	--
- No. 3 Recovery Boiler	*007*	426.01	185.75	196.16	46.39	35.62	24.77	33.92	13.33	18.74	3.69E-03	3.47E-05	0.008
- BLO System for No. 3 Recovery Boiler		--	--	--	0.79	0.79	0.79	19.35	14.87	--	--	--	--
- No. 1 Power Boiler	*002*	35.40	67.06	18.92	4.14	3.79	3.05	1.23	--	1.55	3.08E-04	7.14E-05	0.005
- No. 2 Power Boiler	*003*	0.10	46.21	13.86	1.25	1.25	1.25	0.91	--	--	8.25E-05	4.29E-05	--
- No. 1 Bark Boiler	*004*	37.38	183.21	480.13	128.41	125.84	125.84	27.21	--	1.64	3.22E-02	5.61E-04	0.006
- No. 2 Bark Boiler	*019*	49.83	458.47	1,235.80	300.03	294.03	294.03	70.03	--	0.83	8.25E-02	1.41E-03	0.004
- Total		*1,015.17*	*1,147.87*	*2,166.10*	*618.32*	*566.99*	*523.46*	*212.78*	*59.18*	*43.30*	*1.23E-01*	*2.16E-03*	*0.030*
2001 Actual Emissions													
- No. 2 Recovery Boiler	*006*	586.25	216.76	207.05	108.61	83.40	57.99	35.52	13.23	25.80	4.58E-03	9.15E-05	0.027
- BLO System for No. 2 Recovery Boiler		--	--	--	0.82	0.82	0.82	20.18	15.51	--	--	--	--
- No. 3 Recovery Boiler	*007*	555.59	200.69	188.41	28.46	21.85	15.19	32.27	11.40	24.45	4.29E-03	9.24E-05	0.027
- BLO System for No. 3 Recovery Boiler		--	--	--	0.75	0.75	0.75	18.32	14.08	--	--	--	--
- No. 1 Power Boiler	*002*	379.88	85.41	13.39	27.16	23.45	15.48	0.81	--	16.71	2.07E-03	1.73E-04	0.050
- No. 2 Power Boiler	*003*	0.06	28.15	8.44	0.76	0.76	0.76	0.55	--	--	5.03E-05	2.61E-05	--
- No. 1 Bark Boiler	*004*	55.50	194.38	498.84	132.37	129.73	129.72	28.27	--	2.44	3.36E-02	5.93E-04	0.009
- No. 2 Bark Boiler	*019*	62.08	416.16	1,110.03	279.27	273.69	273.68	62.90	--	1.51	7.42E-02	1.28E-03	0.007
- Total		*1,639.37*	*1,141.54*	*2,026.16*	*578.22*	*534.45*	*494.40*	*198.82*	*54.21*	*70.91*	*1.19E-01*	*2.26E-03*	*0.121*
2002 Actual Emissions													
- No. 2 Recovery Boiler	*006*	520.77	218.97	228.72	101.62	78.04	54.26	39.52	15.15	22.91	4.38E-03	4.68E-05	0.011
- BLO System for No. 2 Recovery Boiler		--	--	--	0.92	0.92	0.92	22.53	17.31	--	--	--	--
- No. 3 Recovery Boiler	*007*	557.64	205.66	198.62	32.44	24.91	17.32	34.10	12.17	24.54	4.32E-03	8.18E-05	0.023
- BLO System for No. 3 Recovery Boiler		--	--	--	0.79	0.79	0.79	19.39	14.89	--	--	--	--
- No. 1 Power Boiler	*002*	335.93	92.08	17.38	24.35	21.09	14.10	1.08	--	14.78	1.77E-03	1.64E-04	0.042
- No. 2 Power Boiler	*003*	0.07	32.30	9.69	0.88	0.88	0.88	0.63	--	--	5.77E-05	3.00E-05	--
- No. 1 Bark Boiler	*004*	42.03	202.43	532.30	133.79	131.12	131.12	30.16	--	1.85	3.57E-02	6.21E-04	0.006
- No. 2 Bark Boiler	*019*	80.22	450.46	1,193.85	288.82	283.05	283.04	67.65	--	2.22	7.99E-02	1.38E-03	0.010
- Total		*1,536.66*	*1,201.90*	*2,180.55*	*583.61*	*540.79*	*502.43*	*215.07*	*59.52*	*66.29*	*1.26E-01*	*2.33E-03*	*0.093*
2003 Actual Emissions													
- No. 2 Recovery Boiler	*006*	541.57	209.78	201.66	69.10	53.06	36.89	34.61	13.11	23.83	4.42E-03	8.56E-05	0.025
- BLO System for No. 2 Recovery Boiler		--	--	--	0.80	0.80	0.80	19.67	15.11	--	--	--	--
- No. 3 Recovery Boiler	*007*	566.39	207.26	189.56	29.05	22.30	15.50	32.39	11.53	24.92	4.49E-03	1.07E-04	0.032
- BLO System for No. 3 Recovery Boiler		--	--	--	0.75	0.75	0.75	18.37	14.12	--	--	--	--
- No. 1 Power Boiler	*002*	491.10	101.84	12.76	35.31	30.40	19.89	0.74	--	21.61	2.97E-03	2.30E-04	0.073
- No. 2 Power Boiler	*003*	0.07	30.96	9.29	0.84	0.84	0.84	0.61	--	--	5.53E-05	2.87E-05	--
- No. 1 Bark Boiler	*004*	48.56	187.23	480.74	128.54	125.97	125.96	27.24	--	2.14	3.23E-02	5.71E-04	0.009
- No. 2 Bark Boiler	*019*	92.67	442.01	1,153.28	309.64	303.45	303.44	65.35	--	2.81	7.74E-02	1.35E-03	0.016
- Total		*1,740.35*	*1,179.08*	*2,047.29*	*574.03*	*537.58*	*504.08*	*198.99*	*53.88*	*75.31*	*1.22E-01*	*2.38E-03*	*0.154*
2004 Actual Emissions													
- No. 2 Recovery Boiler	*006*	640.92	248.19	244.86	84.85	65.16	45.30	42.11	16.51	28.20	5.15E-03	8.66E-05	0.024
- BLO System for No. 2 Recovery Boiler		--	--	--	0.98	0.98	0.98	23.96	18.41	--	--	--	--
- No. 3 Recovery Boiler	*007*	605.08	217.06	202.72	30.88	23.71	16.48	34.71	12.26	26.62	4.65E-03	1.02E-04	0.030
- BLO System for No. 3 Recovery Boiler		--	--	--	0.80	0.80	0.80	19.70	15.14	--	--	--	--
- No. 1 Power Boiler	*002*	586.75	100.35	11.21	41.11	35.36	23.05	0.64	--	25.82	3.14E-03	2.37E-04	0.077
- No. 2 Power Boiler	*003*	0.08	36.58	10.98	0.99	0.99	0.99	0.72	--	--	6.53E-05	3.40E-05	--
- No. 1 Bark Boiler	*004*	56.85	197.79	507.32	124.52	122.03	122.03	28.75	--	2.50	3.41E-02	6.03E-04	0.010
- No. 2 Bark Boiler	*019*	69.87	453.45	1,207.83	340.83	334.02	334.01	68.44	--	1.75	8.08E-02	1.39E-03	0.009
- Total		*1,959.54*	*1,253.43*	*2,184.92*	*624.96*	*583.05*	*543.65*	*219.03*	*62.31*	*84.89*	*1.28E-01*	*2.46E-03*	*0.150*
2005 Actual Emissions													
- No. 2 Recovery Boiler	*006*	586.25	241.88	244.34	62.37	47.89	33.30	42.11	16.92	25.80	4.94E-03	7.11E-05	0.019
- BLO System for No. 2 Recovery Boiler		--	--	--	0.98	0.98	0.98	23.98	18.42	--	--	--	--
- No. 3 Recovery Boiler	*007*	483.85	197.78	198.42	36.80	28.26	19.65	34.17	12.00	21.29	4.06E-03	6.13E-05	0.017
- BLO System for No. 3 Recovery Boiler		--	--	--	0.79	0.79	0.79	19.46	14.95	--	--	--	--
- No. 1 Power Boiler	*002*	585.01	113.83	12.96	41.86	36.02	23.49	0.74	--	25.74	3.52E-03	2.67E-04	0.087
- No. 2 Power Boiler	*003*	0.06	30.28	9.08	0.82	0.82	0.82	0.59	--	--	5.41E-05	2.81E-05	--
- No. 1 Bark Boiler	*004*	71.03	212.33	531.87	135.36	132.66	132.65	30.14	--	3.13	3.59E-02	6.44E-04	0.014
- No. 2 Bark Boiler	*019*	70.31	457.77	1,215.82	351.09	344.07	344.06	68.90	--	1.76	8.14E-02	1.41E-03	0.010
- Total		*1,796.52*	*1,253.87*	*2,212.49*	*630.07*	*591.49*	*555.74*	*220.08*	*62.29*	*77.71*	*1.30E-01*	*2.48E-03*	*0.147*
2006 Actual Emissions													
- No. 2 Recovery Boiler	*006*	600.80	240.78	242.93	63.44	48.72	33.87	41.86	15.89	26.44	4.92E-03	7.15E-05	0.019
- BLO System for No. 2 Recovery Boiler		--	--	--	0.97	0.97	0.97	23.84	18.31	--	--	--	--
- No. 3 Recovery Boiler	*007*	525.62	198.85	193.08	39.44	30.28	21.06	33.16	10.58	23.13	4.16E-03	7.67E-05	0.022
- BLO System for No. 3 Recovery Boiler		--	--	--	0.77	0.77	0.77	18.86	14.49	--	--	--	--
- No. 1 Power Boiler	*002*	338.00	88.97	15.81	24.52	21.21	14.12	0.98	--	14.87	1.86E-03	1.66E-04	0.045
- No. 2 Power Boiler	*003*	0.07	31.26	9.38	0.85	0.85	0.85	0.61	--	--	5.58E-05	2.90E-05	--
- No. 1 Bark Boiler	*004*	33.33	211.36	562.44	125.54	123.03	123.02	31.87	--	1.47	3.76E-02	6.50E-04	0.004
- No. 2 Bark Boiler	*019*	55.12	460.22	1,237.57	356.93	349.80	349.79	70.13	--	1.06	8.27E-02	1.42E-03	0.005
- Total		*1,552.93*	*1,231.45*	*2,261.20*	*612.46*	*575.63*	*544.46*	*221.31*	*59.27*	*66.96*	*1.31E-01*	*2.41E-03*	*0.095*

TABLE A-40
SUMMARY OF BASELINE 2-YEAR AVERAGE ACTUAL (1997-2006) EMISSIONS
BUCKEYE ENERGY PROJECT, BUCKEYE FLORIDA

Source Description	EU ID	Pollutant Emission Rate (TPY)											
		SO_2	NO_x	CO	PM	PM_{10}	$PM_{2.5}$	VOC	TRS	SAM	Lead	Mercury	Fluoride
1997 - 1998 Average Emissions													
- No. 2 Recovery Boiler	*006*	480.83	204.75	219.15	146.18	112.26	78.06	37.93	13.48	21.16	4.02E-03	3.14E-05	0.006
- BLO System for No. 2 Recovery Boiler		--	--	--	0.88	0.88	0.88	21.65	16.63	--	--	--	--
- No. 3 Recovery Boiler	*007*	493.10	180.92	182.70	66.64	51.17	35.58	31.48	14.20	21.70	3.70E-03	5.33E-05	0.014
- BLO System for No. 3 Recovery Boiler		--	--	--	0.73	0.73	0.73	17.93	13.77	--	--	--	--
- No. 1 Power Boiler	*002*	22.36	67.11	19.62	3.23	3.02	2.58	1.28	--	0.98	2.01E-04	6.62E-05	0.002
- No. 2 Power Boiler	*003*	0.16	73.43	22.03	1.99	1.99	1.99	1.44	--	--	1.31E-04	6.82E-05	--
- No. 1 Bark Boiler	*004*	61.23	188.74	489.11	132.70	130.04	130.04	27.72	--	2.69	3.29E-02	5.77E-04	0.008
- No. 2 Bark Boiler	*019*	55.39	385.23	1,035.17	255.58	250.47	250.47	58.66	--	1.30	6.92E-02	1.19E-03	0.005
- Total		*1,113.06*	*1,100.19*	*1,967.77*	*607.94*	*550.58*	*500.34*	*198.09*	*58.08*	*47.82*	*1.10E-01*	*1.98E-03*	*0.035*
1998 - 1999 Average Emissions													
- No. 2 Recovery Boiler	*006*	486.47	207.54	222.28	140.42	107.84	74.98	38.48	14.42	21.40	4.08E-03	3.15E-05	0.006
- BLO System for No. 2 Recovery Boiler		--	--	--	0.90	0.90	0.90	21.96	16.87	--	--	--	--
- No. 3 Recovery Boiler	*007*	477.16	181.20	185.65	64.62	49.62	34.50	32.03	13.02	20.99	3.67E-03	4.71E-05	0.012
- BLO System for No. 3 Recovery Boiler		--	--	--	0.75	0.75	0.75	18.25	14.02	--	--	--	--
- No. 1 Power Boiler	*002*	34.23	76.20	22.07	4.23	3.91	3.23	1.44	--	1.50	2.60E-04	7.68E-05	0.003
- No. 2 Power Boiler	*003*	0.14	65.54	19.66	1.78	1.78	1.78	1.29	--	--	1.17E-04	6.09E-05	--
- No. 1 Bark Boiler	*004*	64.68	178.28	458.35	135.72	133.00	133.00	25.97	--	2.85	3.08E-02	5.44E-04	0.008
- No. 2 Bark Boiler	*019*	62.82	448.54	1,206.20	277.10	271.56	271.56	68.35	--	1.44	8.06E-02	1.38E-03	0.005
- Total		*1,125.49*	*1,157.28*	*2,114.22*	*625.51*	*569.36*	*520.70*	*207.76*	*58.33*	*48.18*	*1.20E-01*	*2.14E-03*	*0.035*
1999 - 2000 Average Emissions													
- No. 2 Recovery Boiler	*006*	485.06	211.43	226.27	137.07	105.27	73.19	39.17	14.76	21.34	4.16E-03	3.25E-05	0.007
- BLO System for No. 2 Recovery Boiler		--	--	--	0.91	0.91	0.91	22.35	17.17	--	--	--	--
- No. 3 Recovery Boiler	*007*	436.42	183.26	193.04	54.95	42.20	29.34	33.37	12.37	19.20	3.64E-03	3.54E-05	0.008
- BLO System for No. 3 Recovery Boiler		--	--	--	0.78	0.78	0.78	19.03	14.63	--	--	--	--
- No. 1 Power Boiler	*002*	30.40	71.61	20.59	3.91	3.61	2.99	1.34	--	1.33	2.68E-04	7.33E-05	0.004
- No. 2 Power Boiler	*003*	0.11	51.46	15.44	1.40	1.40	1.40	1.01	--	--	9.19E-05	4.78E-05	--
- No. 1 Bark Boiler	*004*	55.82	181.94	470.00	132.60	129.95	129.95	26.63	--	2.46	3.16E-02	5.55E-04	0.008
- No. 2 Bark Boiler	*019*	55.39	454.86	1,225.25	290.60	284.79	284.79	69.43	--	1.09	8.18E-02	1.40E-03	0.005
- Total		*1,063.20*	*1,154.56*	*2,150.58*	*622.22*	*568.91*	*523.35*	*212.34*	*58.93*	*45.42*	*1.22E-01*	*2.15E-03*	*0.031*
2000 - 2001 Average Emissions													
- No. 2 Recovery Boiler	*006*	526.35	211.96	214.14	122.51	94.08	65.42	36.90	13.72	23.16	4.33E-03	6.23E-05	0.017
- BLO System for No. 2 Recovery Boiler		--	--	--	0.86	0.86	0.86	21.01	16.15	--	--	--	--
- No. 3 Recovery Boiler	*007*	490.80	193.22	192.28	37.42	28.74	19.98	33.10	12.37	21.60	3.99E-03	6.35E-05	0.018
- BLO System for No. 3 Recovery Boiler		--	--	--	0.77	0.77	0.77	18.84	14.47	--	--	--	--
- No. 1 Power Boiler	*002*	207.64	76.23	16.15	15.65	13.62	9.26	1.02	--	9.13	1.19E-03	1.22E-04	0.028
- No. 2 Power Boiler	*003*	0.08	37.18	11.15	1.01	1.01	1.01	0.73	--	--	6.64E-05	3.45E-05	--
- No. 1 Bark Boiler	*004*	46.44	188.80	489.48	130.39	127.79	127.78	27.74	--	2.04	3.29E-02	5.77E-04	0.008
- No. 2 Bark Boiler	*019*	55.96	437.32	1,172.92	289.65	283.86	283.86	66.46	--	1.17	7.84E-02	1.35E-03	0.006
- Total		*1,327.27*	*1,144.71*	*2,096.13*	*598.27*	*550.72*	*508.93*	*205.80*	*56.70*	*57.10*	*1.21E-01*	*2.21E-03*	*0.075*
2001 - 2002 Average Emissions													
- No. 2 Recovery Boiler	*006*	553.51	217.86	217.88	105.11	80.72	56.12	37.52	14.19	24.35	4.48E-03	6.92E-05	0.019
- BLO System for No. 2 Recovery Boiler		--	--	--	0.87	0.87	0.87	21.36	16.41	--	--	--	--
- No. 3 Recovery Boiler	*007*	277.80	100.34	94.20	14.63	11.32	7.99	25.83	13.15	12.22	4.30E-03	8.71E-05	0.014
- BLO System for No. 3 Recovery Boiler		278.82	102.83	99.31	16.60	12.83	9.03	26.21	13.12	12.27	--	--	0.012
- No. 1 Power Boiler	*002*	357.90	88.74	15.38	25.76	22.27	14.79	0.95	--	15.74	1.92E-03	1.68E-04	0.046
- No. 2 Power Boiler	*003*	0.06	30.22	9.07	0.82	0.82	0.82	0.59	--	--	5.40E-05	2.81E-05	--
- No. 1 Bark Boiler	*004*	48.77	198.40	515.57	133.08	130.43	130.42	29.21	--	2.15	3.46E-02	6.07E-04	0.008
- No. 2 Bark Boiler	*019*	71.15	433.31	1,151.94	284.05	278.37	278.36	65.28	--	1.86	7.71E-02	1.33E-03	0.009
- Total		*1,588.01*	*1,171.72*	*2,103.36*	*580.91*	*537.62*	*498.41*	*206.95*	*56.87*	*68.60*	*1.22E-01*	*2.29E-03*	*0.107*
2002 - 2003 Average Emissions													
- No. 2 Recovery Boiler	*006*	531.17	214.37	215.19	85.36	65.55	45.58	37.06	14.13	23.37	4.40E-03	6.62E-05	0.018
- BLO System for No. 2 Recovery Boiler		--	--	--	0.86	0.86	0.86	21.10	16.21	--	--	--	--
- No. 3 Recovery Boiler	*007*	--	--	--	0.77	0.77	0.77	18.88	14.51	--	4.41E-03	9.45E-05	--
- BLO System for No. 3 Recovery Boiler		562.02	206.46	194.09	30.75	23.60	16.41	33.25	11.85	24.73	--	--	0.028
- No. 1 Power Boiler	*002*	413.51	96.96	15.07	29.83	25.75	17.00	0.91	--	18.19	2.37E-03	1.97E-04	0.057
- No. 2 Power Boiler	*003*	0.07	31.63	9.49	0.86	0.86	0.86	0.62	--	--	5.65E-05	2.94E-05	--
- No. 1 Bark Boiler	*004*	45.29	194.83	506.52	131.16	128.55	128.54	28.70	--	1.99	3.40E-02	5.96E-04	0.008
- No. 2 Bark Boiler	*019*	86.44	446.24	1,173.56	299.23	293.25	293.24	66.50	--	2.51	7.86E-02	1.37E-03	0.013
- Total		*1,638.51*	*1,190.49*	*2,113.92*	*578.82*	*539.19*	*503.26*	*207.03*	*56.70*	*70.80*	*1.24E-01*	*2.35E-03*	*0.124*
2003 - 2004 Average Emissions													
- No. 2 Recovery Boiler	*006*	591.25	228.98	223.26	76.98	59.11	41.10	38.36	14.81	26.01	4.78E-03	8.61E-05	0.024
- BLO System for No. 2 Recovery Boiler		--	--	--	0.89	0.89	0.89	21.82	16.76	--	--	--	--
- No. 3 Recovery Boiler	*007*	--	--	--	0.78	0.78	0.78	19.04	14.63	--	4.57E-03	1.05E-04	--
- BLO System for No. 3 Recovery Boiler		585.73	212.16	196.14	29.97	23.00	15.99	33.55	11.90	25.77	--	--	0.031
- No. 1 Power Boiler	*002*	538.92	101.09	11.99	38.21	32.88	21.47	0.69	--	23.71	3.05E-03	2.34E-04	0.075
- No. 2 Power Boiler	*003*	0.07	33.77	10.13	0.92	0.92	0.92	0.66	--	--	6.03E-05	3.14E-05	--
- No. 1 Bark Boiler	*004*	52.70	192.51	494.03	126.53	124.00	124.00	27.99	--	2.32	3.32E-02	5.87E-04	0.009
- No. 2 Bark Boiler	*019*	81.27	447.73	1,180.55	325.23	318.73	318.72	66.90	--	2.28	7.91E-02	1.37E-03	0.012
- Total		*1,849.95*	*1,216.25*	*2,116.10*	*599.50*	*560.32*	*523.87*	*209.01*	*58.10*	*80.10*	*1.25E-01*	*2.42E-03*	*0.152*
2004 - 2005 Average Emissions													
- No. 2 Recovery Boiler	*006*	613.59	245.03	244.60	73.61	56.52	39.30	42.11	16.71	27.00	5.05E-03	7.88E-05	0.022
- BLO System for No. 2 Recovery Boiler		--	--	--	0.98	0.98	0.98	23.97	18.42	--	--	--	--
- No. 3 Recovery Boiler	*007*	241.92	98.89	99.21	18.80	14.53	10.23	26.94	13.57	10.64	4.35E-03	8.19E-05	0.008
- BLO System for No. 3 Recovery Boiler		302.54	108.53	101.36	15.84	12.25	8.64	27.08	13.60	13.31	--	--	0.015
- No. 1 Power Boiler	*002*	585.88	107.09	12.08	41.48	35.69	23.27	0.69	--	25.78	3.33E-03	2.52E-04	0.082
- No. 2 Power Boiler	*003*	0.07	33.43	10.03	0.91	0.91	0.91	0.66	--	--	5.97E-05	3.10E-05	--
- No. 1 Bark Boiler	*004*	63.94	205.06	519.60	129.94	127.35	127.34	29.44	--	2.81	3.50E-02	6.23E-04	0.012
- No. 2 Bark Boiler	*019*	70.09	455.61	1,211.82	345.96	339.04	339.04	68.67	--	1.75	8.11E-02	1.40E-03	0.009
- Total		*1,878.03*	*1,253.65*	*2,198.70*	*627.52*	*587.27*	*549.70*	*219.55*	*62.30*	*81.30*	*1.29E-01*	*2.47E-03*	*0.149*
2005 - 2006 Average Emissions													
- No. 2 Recovery Boiler	*006*	593.53	241.33	243.63	62.90	48.30	33.58	41.98	16.40	26.12	4.93E-03	7.13E-05	0.019
- BLO System for No. 2 Recovery Boiler		--	--	--	0.98	0.98	0.98	23.91	18.37	--	--	--	--
- No. 3 Recovery Boiler	*007*	504.73	198.32	195.75	38.12	29.27	20.35	33.67	11.29	22.21	4.11E-03	6.90E-05	0.019
- BLO System for No. 3 Recovery Boiler		--	--	--	0.78	0.78	0.78	19.16	14.72	--	--	--	--
- No. 1 Power Boiler	*002*	461.51	101.40	14.38	33.19	28.61	18.81	0.86	--	20.30	2.69E-03	2.16E-04	0.066
- No. 2 Power Boiler	*003*	0.07	30.77	9.23	0.84	0.84	0.84	0.60	--	--	5.49E-05	2.86E-05	--
- No. 1 Bark Boiler	*004*	52.18	211.85	547.15	130.45	127.84	127.84	31.00	--	2.30	3.68E-02	6.47E-04	0.009
- No. 2 Bark Boiler	*019*	62.71	459.00	1,226.69	354.01	346.93	346.93	69.51	--	1.41	8.20E-02	1.41E-03	0.008
- Total		*1,674.73*	*1,242.66*	*2,236.84*	*621.27*	*583.56*	*550.10*	*220.69*	*60.78*	*72.34*	*1.31E-01*	*2.44E-03*	*0.121*
		'04 - '05	'04 - '05	'05 - '06	'04 - '05	'04 - '05	'05 - '06	'05 - '06	'04 - '05	'04 - '05	'05 - '06	'04 - '05	'03 - '04
Highest Consecutive 2-Year Average		**1,878.03**	**1,253.65**	**2,236.84**	**627.52**	**587.27**	**550.10**	**220.69**	**62.30**	**81.30**	**1.31E-01**	**2.47E-03**	**0.152**

TABLE B-2
ESTIMATED INCREASE IN ACTUAL EMISSIONS FROM THE BARK HANDLING SYSTEM AT BUCKEYE FLORIDA L.P.

Source	Type of Operation	M Moisture Content [a] (%)	U Wind Speed [b] (MPH)	Uncontrolled PM Emission Factor [c]	Uncontrolled PM_{10} Emission Factor [c]	Type of Control	Control Efficiency (%)	Activity Factor	Controlled Emissions PM (lb/hr)	PM (TPY)	PM_{10} (lb/hr)	PM_{10} (TPY)	$PM_{2.5}$ (lb/hr) [h]	$PM_{2.5}$ (TPY) [h]
Truck Dump to Storage Pile	Batch Drop	50	10.3	0.00007 lb/ton	0.000032 lb/ton	None	0	87,822 TPY [d]	0.0007	0.0029	0.0003	0.0014	0.0003	0.0014
Trucks bringing purchased Bark on-site (paved road)	Vehicular Traffic	50	--	0.821 lb/VMT	0.160 lb/VMT	None	0	7,026 VMT/yr [e]	0.6588	2.8854	0.1285	0.5630	0.1285	0.5630
Front-end Loader Pick Up from Storage Pile	Batch Drop	50	10.3	0.00007 lb/ton	0.000032 lb/ton	None	0	87,822 TPY [d]	0.0007	0.0029	0.0003	0.0014	0.0003	0.0014
Front-end Loader Drop to Stoker Pile	Batch Drop	50	10.3	0.00007 lb/ton	0.000032 lb/ton	None	0	87,822 TPY [d]	0.0007	0.0029	0.0003	0.0014	0.0003	0.0014
Front-end Loader Traffic (unpaved)	Vehicular Traffic	50	--	0.620 lb/VMT	0.228 lb/VMT	None	0	1,933 VMT/yr [f]	0.1367	0.5988	0.0502	0.2199	0.0502	0.2199
Transfer from Stoker to Conveyor	Continuous Drop	50	10.3	0.00007 lb/ton	0.000032 lb/ton	Enclosed	80	87,822 TPY [d]	0.0001	0.0006	0.0001	0.0003	0.0001	0.0003
Drop from Conveyor to Transfer Tower Chute	Continuous Drop	50	10.3	0.00007 lb/ton	0.000032 lb/ton	Enclosed	80	87,822 TPY [d]	0.0001	0.0006	0.0001	0.0003	0.0001	0.0003
Drop from Chipyard Conveyor to Transfer Tower Chute	Continuous Drop	50	10.3	0.00007 lb/ton	0.000032 lb/ton	Enclosed	80	87,822 TPY [d]	0.0001	0.0006	0.0001	0.0003	0.0001	0.0003
Drop from Transfer Tower Chute to Conveyor	Continuous Drop	50	10.3	0.00007 lb/ton	0.000032 lb/ton	Enclosed	80	87,822 TPY [d]	0.0001	0.0006	0.0001	0.0003	0.0001	0.0003
Drop from Conveyor to Magnet Separator Conveyor	Continuous Drop	50	10.3	0.00007 lb/ton	0.000032 lb/ton	Enclosed	80	87,822 TPY [d]	0.0001	0.0006	0.0001	0.0003	0.0001	0.0003
Drop from Magnet Separator Conveyor to Hog Tower Chute	Continuous Drop	50	10.3	0.00007 lb/ton	0.000032 lb/ton	Enclosed	80	87,822 TPY [d]	0.0001	0.0006	0.0001	0.0003	0.0001	0.0003
Screening [g]	Continuous Drop	50	10.3	0.00007 lb/ton	0.000032 lb/ton	Enclosed	80	87,822 TPY [d]	0.0001	0.0006	0.0001	0.0003	0.0001	0.0003
Oversize Drop from Screen to Bark Hog	Continuous Drop	50	10.3	0.00007 lb/ton	0.000032 lb/ton	Enclosed	80	87,822 TPY [d]	0.0001	0.0006	0.0001	0.0003	0.0001	0.0003
Undersize Drop from Screen to Conveyor	Continuous Drop	50	10.3	0.00007 lb/ton	0.000032 lb/ton	Enclosed	80	87,822 TPY [d]	0.0001	0.0006	0.0001	0.0003	0.0001	0.0003
Bark Hog (bark crusher)	Crushing	--	--	0.02 lb/ton	0.01 lb/ton	Enclosed	80	87,822 TPY [d]	0.0401	0.1756	0.0201	0.0878	0.0201	0.0878
Drop from Bark Hog to Conveyor	Continuous Drop	50	10.3	0.00007 lb/ton	0.000032 lb/ton	Enclosed	80	87,822 TPY [d]	0.0001	0.0006	0.0001	0.0003	0.0001	0.0003
Drop from Conveyor to Power House Conveyor	Continuous Drop	50	10.3	0.00007 lb/ton	0.000032 lb/ton	Enclosed	80	87,822 TPY [d]	0.0001	0.0006	0.0001	0.0003	0.0001	0.0003
Drop from Conveyor to Bark Boilers	Continuous Drop	50	10.3	0.00007 lb/ton	0.000032 lb/ton	Enclosed	80	87,822 TPY [d]	0.0001	0.0006	0.0001	0.0003	0.0001	0.0003
Total =									**0.8392**	**3.6757**	**0.2005**	**0.8782**	**0.2005**	**0.8782**

Notes:

[a] Moisture content based on estimated actual moisture content of bark/wood.

[b] Wind speed is based on average wind speed for Gainesville, FL (the nearest, representative station for which data is available).

[c] Emission factors for batch and continuous drop operations based on AP-42 Section 13.2.4, Aggregate Handling and Storage Piles: $E = k (0.0032) * (U/5)^{1.3} / (M/2)^{1.4}$, where k = 0.74 for PM and k = 0.35 for PM_{10}.
Emission factors for vehicular traffic are based on AP-42 Section 13.2.2. Paved roads: $E = k (sL/2)^{0.65} (W/3)^{1.5}$, where k = 0.082 lb/VMT for PM and 0.016 for PM_{10}, sL = 0.4 g/m^2, and W = 28 tons; Unpaved Roads: $E = S/15 * k * (s/12)^a * (W/3)^b / (M/0.2)^c$, where S= 4 mph for Front-End Loader, k = 10, a =0.8, b = 0.5, c = 0.4 for PM and k = 2.6, a = 0.8, b = 0.4, c = 0.3 for PM10; s = 8.4% (based on Table 13.2.2-1 for Lumber Sawmills), W = 23.75 tons (47,500 lbs, based on weight of front-end loader), and M = 30%. Emission factors for the bark/wood crushing operation based on AP-42 Table 11.24-2, Metallic Minerals Processing, primary crushing for high moisture ore.

[d] Based on the projected 13% increase in heat input to the Bark Boilers.

[e] Based on 1 mile round trip distance, 15 mph average truck speed, 25 tons per truck, and the projected increase in wet wood to the Bark Boilers.

[f] Based on percentage of increase in bark usage relative to the entire facility usage (11.5% x 12 hours/day x 350 days/year x 4 miles/hour).

[g] Assumed equivalent to a continuous drop operation.

[h] Conservative assumption that 100% of PM_{10} is $PM_{2.5}$.

ATTACHMENT D

EMISSION FACTOR INFORMATION FOR $PM_{2.5}$ EMISSION FACTORS

Table 1.6-5. CUMULATIVE PARTICLE SIZE DISTRIBUTION AND SIZE-SPECIFIC EMISSION FACTORS FOR WOOD/BARK-FIRED BOILERS[a]

EMISSION FACTOR RATING: E

Particle Size[b] (μm)	Cumulative Mass % ≤ Stated Size				
		Controlled			
	Uncontrolled[c]	Multiple Cyclone[d]	Multiple Cyclone[e]	Scrubber[f]	Dry Electrostatic Granular Filter (DEGF)
15	94	96	35	98	77
10	90	91	32	98	74
6	86	80	27	98	69
2.5	76	54	16	98	65
1.25	69	30	8	96	61
1.00	67	24	6	95	58
0.625	ND	16	3	ND	51
Total	100	100	100	100	100

[a] Reference 89.
[b] Expressed as aerodynamic equivalent diameter.
[c] From data on underfeed stokers. May also be used as size distribution for wood-fired boilers.
[d] From data on spreader stokers with flyash reinjection.
[e] From data on spreader stokers without flyash reinjection.
[f] From data on Dutch ovens. Assumed control efficiency is 94%.

ATTACHMENT E

REVISED MODELING REPORT TABLES

TABLE 2-1
PAST ACTUAL EMISSIONS FOR BUCKEYE ENERGY INDEPENDENCE PROJECT, BUCKEYE FLORIDA

Source Description	EU ID	Pollutant Emission Rates					
		PM_{10}		NO_x		CO	
		Past Actual Short-term Emissions[a]					
		lb/hr	g/s	lb/hr	g/s	lb/hr	g/s
No. 2 Recovery Boiler	006	15.90	2.003	105.02	13.233	335.98	42.334
No. 3 Recovery Boiler	007	12.29	1.548	120.75	15.214	289.51	36.479
Combined stack:							
No. 1 Bark Boiler	004	32.73	4.124	59.80	7.534	155.70	19.618
No. 2 Bark Boiler	019	94.96	11.965	125.61	15.827	339.08	42.724
No. 1 Power Boiler	002	20.43	2.574	68.64	8.648	20.59	2.595
No. 2 Power Boiler	003	1.11	0.140	40.91	5.155	12.27	1.546
Total		149.23	18.803	294.96	37.164	527.64	66.483
		Past Actual Annual Emissions[b]					
		TPY	g/s	TPY	g/s	TPY	g/s
No. 2 Recovery Boiler	006	48.72	1.401	241.88	6.958	244.34	7.029
No. 3 Recovery Boiler	007	30.28	0.871	198.85	5.720	198.42	5.708
Combined stack:							
No. 1 Bark Boiler	004	132.66	3.816	212.33	6.108	562.44	16.180
No. 2 Bark Boiler	019	349.80	10.063	460.22	13.239	1,237.57	35.601
No. 1 Power Boiler	002	36.02	1.036	113.83	3.275	15.81	0.455
No. 2 Power Boiler	003	0.85	0.024	31.26	0.899	9.38	0.270
Total		519.32	14.939	817.65	23.521	1,825.20	52.506

[a] Refer to tables in Appendix A for derivation.

[b] Represents highest annual emissions from 2005 or 2006. See Table A-39 of PSD Report.

TABLE 2-2
FUTURE POTENTIAL EMISSIONS USED IN MODELING FOR BUCKEYE ENERGY INDEPENDENCE PROJECT

Source Description	EU ID	Pollutant Emission Rates[a] PM_{10}		NO_x		CO	
		Future Maximum Short-Term Emissions					
		lb/hr	g/s	lb/hr	g/s	lb/hr	g/s
No. 2 Recovery Boiler	006	22.52	2.838	131.66	16.590	428.27	53.962
No. 3 Recovery Boiler	007	21.87	2.756	131.66	16.590	415.90	52.403
Combined stack:							
No. 1 Bark Boiler	004	46.45	5.853	77.26	9.735	180.00	22.680
No. 2 Bark Boiler	019	104.84	13.210	132.22	16.660	360.60	45.436
No. 1 Power Boiler	002	38.42	4.841	80.16	10.100	20.92	2.635
No. 2 Power Boiler	003	1.89	0.238	69.72	8.785	20.92	2.635
Total		191.60	24.142	359.36	45.279	582.43	73.386
Bark Handling System [b]		0.072	0.009	--	--	--	--
Truck Traffic [b]		0.129	0.016	--	--	--	--
Total		0.201	0.025	--	--	--	--
		Future Maximum Annual Emissions					
		TPY	g/s	TPY	g/s	TPY	g/s
No. 2 Recovery Boiler	006	98.65	2.838	333.21	9.586	937.92	26.981
No. 3 Recovery Boiler	007	95.80	2.756	326.08	9.380	910.82	26.202
Combined stack:							
No. 1 Bark Boiler	004	203.46	5.853	338.40	9.735	788.40	22.680
No. 2 Bark Boiler	019	459.19	13.210	579.12	16.660	1,579.43	45.436
No. 1 Power Boiler	002	68.51	1.971	322.58	9.280	91.61	2.635
No. 2 Power Boiler	003	8.29	0.238	305.37	8.785	91.61	2.635
Total		739.45	21.272	1,545.48	44.459	2,551.05	73.386
Bark Handling System [b]		0.315	0.040	--	--	--	--
Truck Traffic [b]		0.563	0.071	--	--	--	--
Total		0.878	0.111	--	--	--	--

[a] Refer to Table 2-4 of PSD Report.

[b] Represents increase in emissions due to project (see Appendix B, Table B-2 of PSD Report). Emissions from truck traffic represent the increase in purchased wood/bark brought onto the site by trucks.

TABLE 2-3

CHANGE IN EMISSIONS USED IN MODELING ANALYSIS FOR BUCKEYE ENERGY INDEPENDENCE PROJECT

Source Description	EU ID	PM_{10}		NO_x		CO	
		Change in Short-Term Emissions					
		lb/hr	g/s	lb/hr	g/s	lb/hr	g/s
No. 2 Recovery Boiler	006	6.63	0.835	26.64	3.357	92.29	11.628
No. 3 Recovery Boiler	007	9.58	1.208	10.92	1.375	126.39	15.925
Combined stack:							
No. 1 Bark Boiler	004	13.72	1.729	17.46	2.201	24.30	3.062
No. 2 Bark Boiler	019	9.88	1.244	6.61	0.833	21.52	2.712
No. 1 Power Boiler	002	17.99	2.267	11.52	1.451	0.32	0.041
No. 2 Power Boiler	003	0.78	0.099	28.81	3.630	8.64	1.089
Total		42.37	5.339	64.40	8.115	54.79	6.903
Bark Handling System		0.07	0.009	--	--	--	--
Truck Traffic		0.13	0.016	--	--	--	--
Total		0.20	0.025	--	--	--	--
		Change in Annual Emissions					
		TPY	g/s	TPY	g/s	TPY	g/s
No. 2 Recovery Boiler	006	49.94	1.437	91.34	2.627	693.57	19.952
No. 3 Recovery Boiler	007	65.52	1.885	127.23	3.660	712.40	20.494
Combined stack:							
No. 1 Bark Boiler	004	70.80	2.037	126.07	3.627	225.96	6.500
No. 2 Bark Boiler	019	109.40	3.147	118.90	3.420	341.86	9.834
No. 1 Power Boiler	002	32.49	0.935	208.75	6.005	75.80	2.181
No. 2 Power Boiler	003	7.44	0.214	274.11	7.885	82.23	2.366
Total		220.13	6.333	727.83	20.938	725.85	20.881
Bark Handling System		0.32	0.040	--	--	--	--
Truck Traffic		0.56	0.071	--	--	--	--
Total		0.88	0.111	--	--	--	--

TABLE 2-4
FUTURE AND PSD BASELINE (1988) NO_x EMISSIONS FOR BUCKEYE FLORIDA, FOLEY MILL

Source Description	Plant Source ID	Model ID	Annual NO_x Emissions TPY	Annual NO_x Emissions g/s
Future Potential Emissions [a]				
No. 2 Recovery Boiler	006	RB2	333.21	9.586
No. 3 Recovery Boiler	007	RB3	326.08	9.380
No. 4 Recovery Boiler [b]	011	RB4	406.77	11.701
No. 4 Lime Kiln [c]	024	LK4	299.76	8.623
No. 2 Smelt Dissolving Tank [d]	021	SDT2	7.05	0.203
No. 3 Smelt Dissolving Tank [d]	027	SDT3	5.95	0.171
No. 4 Smelt Dissolving Tank [d]	023	SDT4	8.95	0.257
Combined stack				
No. 1 Bark Boiler	004		338.40	5.841
No. 2 Bark Boiler	019		579.12	13.179
No. 1 Power Boiler	002		322.58	9.280
No. 2 Power Boiler	003		305.37	13.179
Totals:		COMBO	1,545.48	41.478
1987-1988 Average Baseline Emissions [e]				
No. 2 Recovery Boiler	006	RB2B	188.56	5.424
No. 3 Recovery Boiler	007	RB3B	168.45	4.846
No. 4 Recovery Boiler	011	RB4B	329.79	9.487
No. 4 Lime Kiln	024	LK4B	184.50	5.307
No. 2 Smelt Dissolving Tank	021	SDT2B	5.30	0.152
No. 3 Smelt Dissolving Tank	027	SDT3B	4.69	0.135
No. 4 Smelt Dissolving Tank	023	SDT4B	6.74	0.194
Combination Stack				
No. 1 Bark Boiler	004		194.61	5.598
No. 2 Bark Boiler	019		423.04	12.170
No. 1 Power Boiler	002		135.21	3.889
No. 2 Power Boiler	003		72.07	2.073
Totals:		COMBOB	824.92	23.731

[a] See Table 2-2 for basis of emissions, unless otherwise noted.

[b] Based on factor of 1.50 lb/ton BLS from NCASI Technical Bulletin No. 884 for NDCE Kraft Recovery Furnaces, median value, and 542,353.5 TPY maximum permitted BLS burning rate (permit No. 1230001-016-AV).

[c] Based on permit limit of 2.19 lb/ton CaO and 273,750 TPY CaO production (permit No. 1230001-016-AV).

[d] Based on factor of 1.50 lb/ton BLS from NCASI Technical Bulletin No. 884 for Smelt Dissolving Tanks, median value, and maximum permitted BLS burning rates of 427,488 TPY, 360,693 TPY, and 542,353.5 TPY for the Nos. 2, 3 & 4 Smelt Dissolving Tanks respectively (permit No. 1230001-016-AV).

[e] See Table 2-5 for 1987-1988 Baseline NO_x emissions calculations.

TABLE 5-1
MAXIMUM PREDICTED POLLUTANT IMPACTS
DUE TO THE BUCKEYE ENERGY INDEPENDENCE PROJECT ONLY

Pollutant / Averaging Time	Highest Concentration[a] ($\mu g/m^3$)	Receptor Location[b] UTM Coordinates (m) East	North	Time Period (YYMMDDHH)
CO				
8-Hour	28	256,414	3,328,240	01091516
	27	256,462	3,328,237	02071816
	28	256,654	3,328,226	03092816
	27	255,782	3,328,613	04111016
	29	256,414	3,328,240	05090916
1-Hour	38	256,510	3,328,234	01103012
	38	256,414	3,328,240	02090214
	37	256,462	3,328,237	03111014
	38	256,414	3,328,240	04090410
	38	256,462	3,328,237	05090612
PM_{10}				
Annual	0.6	256,513	3,329,876	01123124
	0.6	256,513	3,329,876	02123124
	0.7	256,513	3,329,876	03123124
	0.6	256,513	3,329,876	04123124
	0.6	256,513	3,329,876	05123124
24-Hour	3.0	256,360	3,329,730	01012924
	4.0	256,960	3,328,130	02030424
	2.9	256,860	3,328,030	03012324
	4.5	255,774	3,328,950	04091524
	4.0	255,660	3,328,530	05012824
NO_2				
Annual	1.52	255,781	3,328,661	01123124
	1.55	255,777	3,328,806	02123124
	1.63	256,300	3,329,667	03123124
	1.47	256,265	3,329,632	04123124
	1.44	256,510	3,328,234	05123124

Note: YYMMDDHH = Year, Month, Day, Hour Ending

[a] Based on the AERMOD model using 5 years of surface and upper air meteorological data from from the NWS station atTallahassee, FL.

[b] NAD27 datum, Zone 17.

TABLE 5-2
MAXIMUM PREDICTED POLLUTANT IMPACTS OF PROJECT ONLY FOR COMPARISON TO EPA CLASS II SIGNIFICANT IMPACT LEVELS

Averaging Time	Highest Concentration[a] ($\mu g/m^3$)	Receptor Location[b] UTM Coordinates (m) East	Receptor Location[b] UTM Coordinates (m) North	Time Period (YYMMDDHH)	EPA Significant Impact Levels ($\mu g/m^3$)
<u>CO</u>					
8-Hour	29	256,414	3,328,240	05090916	500
1-Hour	38	256,414	3,328,240	02090214	2,000
<u>PM_{10}</u>					
Annual	0.71	256,513	3,329,876	03123124	1
24-Hour	4.5	255,774	3,328,950	04091524	5
<u>NO_2</u>					
Annual	1.63	256,300	3,329,667	03123124	1

Note: YYMMDDHH = Year, Month, Day, Hour Ending

[a] Based on the AERMOD model using 5 years of surface and upper air meteorological data from 2001 to 2005 from the NWS station at Tallahassee, FL.

[b] NAD27 datum, Zone 17.

TABLE 5-3
MAXIMUM POLLUTANT IMPACTS PREDICTED FOR THE PROPOSED PROJECT ONLY, PSD CLASS I SIGNIFICANT IMPACT ANALYSES WITHIN 50 KM AT THE ST. MARKS NWR (AERMOD)

Pollutant / Averaging Time	Highest Concentration (µg/m³)	Receptor Location[b] UTM Coordinates (m) East	North	Time Period (YYMMDDHH)	Proposed EPA Class I Significant Impact Level (µg/m³)
CO					
8-Hour	1.0	212,969	3,336,666	01080408	NA
	1.3	212,945	3,335,742	02102808	
	1.0	209,707	3,334,902	03110424	
	1.1	212,945	3,335,742	04073108	
	1.0	212,993	3,337,590	05092608	
1-Hour	3.1	212,945	3,335,742	01090806	NA
	3.1	212,969	3,336,666	02102804	
	3.2	208,100	3,334,945	03110422	
	3.2	212,945	3,335,742	04122201	
	3.1	212,945	3,335,742	05011304	
PM_{10}					
Annual	0.011	212,969	3,336,666	01123124	0.2
	0.012	212,993	3,337,590	02123124	
	0.012	212,993	3,337,590	03123124	
	0.010	212,993	3,337,590	04123124	
	0.011	212,969	3,336,666	05123124	
24-Hour	0.077	212,993	3,337,590	01050624	0.3
	0.093	212,993	3,337,590	02092124	
	0.071	209,707	3,334,902	03110424	
	0.089	212,945	3,335,742	04073124	
	0.061	212,993	3,337,590	05092624	
NO_2					
Annual	0.029	212,969	3,336,666	01123124	0.1
	0.033	212,993	3,337,590	02123124	
	0.034	212,993	3,337,590	03123124	
	0.029	212,993	3,337,590	04123124	
	0.029	212,969	3,336,666	05123124	

Note: YYMMDDHH = Year, Month, Day, Hour Ending
UTM = Universal Transverse Mercator: Zone 17.

[a] Based on the AERMOD model using 5 years of surface and upper air meteorological data from 2001 to 2005 from the NWS stations atTallahassee and Waycross, Georgia, respectively.

[b] NAD27 datum, Zone 17.

TABLE 5-4
SUMMARY OF MAXIMUM POLLUTANT CONCENTRATIONS PREDICTED FOR THE PROPOSED PROJECT AT PSD CLASS I AREAS

		Highest Concentrations [a] (μg/m³)												Proposed
	Averaging	St. Marks NWR			Bradwell Bay Wilderness area			Okefenokee NWR			Chassahowitzka NWR			EPA Class I Significant
Pollutant	Time	2001	2002	2003	2001	2002	2003	2001	2002	2003	2001	2002	2003	Impact Level (μg/m³)
CO	Annual	0.049	0.069	0.052	0.022	0.030	0.023	0.015	0.015	0.017	0.008	0.008	0.007	NA
	24-Hour	0.742	0.769	0.933	0.318	0.399	0.309	0.234	0.210	0.250	0.191	0.184	0.166	NA
	8-Hour	1.188	1.858	1.485	0.709	0.712	0.630	0.588	0.473	0.425	0.378	0.512	0.317	NA
	3-Hour	2.688	2.539	2.609	1.198	1.045	1.277	0.811	0.649	0.673	0.539	0.595	0.446	NA
	1-Hour	3.674	4.746	4.288	1.754	1.584	2.308	0.070	0.845	1.016	0.631	0.731	0.605	NA
PM_{10}	Annual	0.009	0.013	0.010	0.004	0.006	0.004	0.002	0.003	0.003	0.002	0.002	0.001	0.2
	24-Hour	0.151	0.152	0.195	0.065	0.083	0.064	0.046	0.040	0.052	0.039	0.040	0.033	0.3
	8-Hour	0.242	0.385	0.261	0.137	0.135	0.132	0.121	0.097	0.087	0.076	0.110	0.062	NA
	3-Hour	0.517	0.505	0.542	0.242	0.222	0.271	0.162	0.130	0.138	0.114	0.130	0.086	NA
	1-Hour	0.761	0.989	0.840	0.335	0.339	0.502	0.214	0.175	0.209	0.134	0.160	0.124	NA
NO_2	Annual	0.021	0.032	0.025	0.008	0.012	0.008	0.005	0.005	0.006	0.002	0.002	0.002	0.1
	24-Hour	0.208	0.227	0.230	0.078	0.084	0.073	0.066	0.049	0.062	0.041	0.053	0.020	NA
	8-Hour	0.385	0.486	0.411	0.202	0.212	0.182	0.179	0.133	0.125	0.096	0.148	0.047	NA
	3-Hour	0.704	0.725	0.712	0.355	0.332	0.317	0.241	0.173	0.158	0.129	0.184	0.081	NA
	1-Hour	0.907	1.464	1:278	0.493	0.509	0.581	0.311	0.227	0.205	0.150	0.228	0.166	NA

NWR= National Wildlife Refuge

[a] Concentrations are the highest impacts predicted with the CALPUFF V5.8 model and 2001, 2002, and 2003 CALMET V5.8 Wind Fields.

NA = Not Applicable

TABLE 5-5
MAXIMUM ANNUAL NO_2 CONCENTRATIONS DUE TO ALL FUTURE SOURCES, AAQS ANALYSIS

Rank/ Averaging Time	Concentration [a] (µg/m³)	Receptor Location [b] UTM Coordinates (m) East	North	Time Period (YYMMDDHH)
Annual	4.2	255,781	3,328,661	01123124
	4.3	255,777	3,328,806	02123124
	4.3	256,300	3,329,667	03123124
	4.0	256,300	3,329,667	04123124
	4.1	256,654	3,328,226	05123124

Note: YYMMDDHH = Year, Month, Day, Hour Ending

[a] Based on the AERMOD model using 5 years of surface and upper air meteorological data from 2001 to 2005 from the NWS station at Tallahassee.

[b] Based on NAD27 datum, Zone 17.

TABLE 5-6
MAXIMUM NO_2 IMPACTS PREDICTED FOR ALL SOURCES, AAQS ANALYSIS

Rank/ Averaging Time	Concentration (µg/m³) Total (C= A + B)	Modeled[a] (A)	Background[c] (B)	Receptor Location[b] UTM Coordinates (m) East	North	Time Period (YYMMDDHH)	Florida AAQS (µg/m³)
Annual	30.5	4.3	26.2	256,300	3,329,667	03123124	100

Note: YYMMDDHH = Year, Month, Day, Hour Ending

[a] Based on the AERMOD model using 5 years of surface and upper air meteorological data from 2001 to 2005 from the NWS station at Tallahassee.

[b] NAD27 datum, Zone 17.

[c] Based on monitoring data (see Section 3.0); highest annual average concentration.

TABLE 5-7
MAXIMUM ANNUAL NO_2 CONCENTRATIONS DUE TO PSD SOURCES
PSD CLASS II INCREMENT SCREENING ANALYSIS

Rank/ Averaging Time	Concentration[a] (μg/m³)	Receptor Location[b] UTM Coordinates (m) East	North	Time Period (YYMMDDHH)
Annual	1.2	255781	3328661	01123124
	1.2	255777	3328806	02123124
	1.3	256371	3329737	03123124
	1.2	256300	3329667	04123124
	1.1	256702	3328223	05123124

Note: YYMMDDHH = Year, Month, Day, Hour Ending

[a] Based on the AERMOD model using 5 years of surface and upper air meteorological data from from the NWS station atTallahassee.
Predicted concentration of zero indicates concentration was predicted to be zero or less.

[b] Based on NAD27 datum

TABLE 5-8
MAXIMUM NO_2 CONCENTRATION DUE TO PSD SOURCES, PSD CLASS II INCREMENT ANALYSES

Rank/ Averaging Time	Concentration[a] ($\mu g/m^3$)	Receptor Location[b] UTM Coordinates (m)		Time Period (YYMMDDHH)	Allowable PSD Class II Increment ($\mu g/m^3$)
		East	North		
Annual	1.27	256,371	3,329,737	03123124	25

Note: YYMMDDHH = Year, Month, Day, Hour Ending

[a] Based on the AERMOD model using 5 years of surface and upper air meteorological data from 2001 to 2005 from the NWS station at Tallahassee.

[b] NAD27 datum, Zone 17.

[c] Based on monitoring data (see Section 3.0); highest annual average concentration.

TABLE 7-2
MAXIMUM 24-HOUR VISIBILITY IMPAIRMENT PREDICTED FOR THE PROPOSED PROJECT
AT THE PSD CLASS I AREAS

Area	Visibility Impairment (%) [a]			Visibility Impairment Criteria (%)
	2001	2002	2003	
BACKGROUND EXTINCTION CALCULATIONS: METHOD 2 WITH RHMAX = 95 PERCENT				
St. Marks NWR	3.72	4.02	5.01	5.0
Okefenokee NWR	1.47	1.66	1.52	5.0
Chassahowitzka NWR	1.13	1.50	1.13	5.0
BACKGROUND EXTINCTION CALCULATIONS: METHOD 6 WITH MONTHLY F(RH) FACTORS - HIGHEST				
St. Marks NWR	3.13	4.52	4.32	5.0
Okefenokee NWR	1.14	1.23	1.29	5.0
Chassahowitzka NWR	1.32	1.12	0.93	5.0

[a] Concentrations are highest predicted using CALPUFF V5.8 with CALMET V5.8 4-km Florida Domains, 2001 to 2003.
Background extinctions calculated using FLAG Document (December 2000) and stated method.
NWR = National Wildlife Refuge.

TABLE 7-3
TOTAL ANNUAL NITROGEN DEPOSITION PREDICTED FOR THE PROPOSED PROJECT AT THE PSD CLASS I AREAS

	Total Deposition (Wet & Dry)						Deposition Analysis Threshold[b]
	2001		2002		2003		
PSD Class I Area	($g/m^2/s$)	(kg/ha/yr)	($g/m^2/s$)	(kg/ha/yr)	($g/m^2/s$)	(kg/ha/yr)	(kg/ha/yr)
St. Marks NWR	2.687E-11	0.0085	3.807E-11	0.0120	3.400E-11	0.0107	0.01
Bradwell Bay Wilderness area	1.385E-11	0.0044	1.684E-11	0.0053	1.409E-11	0.0044	0.01
Okefenokee NWR	8.460E-12	0.0027	9.819E-12	0.0031	1.093E-11	0.0034	0.01
Chassahowitzka NWR	2.080E-12	0.0007	2.328E-12	0.0007	1.455E-12	0.0005	0.01

[a] Conversion factor is used to convert $g/m^2/s$ to kg/hectare (ha)/yr using following units:

$g/m^2/s$ x 0.001 kg/g
x 10000 m^2/hectare
x 3600 sec/hr
x 8760 hr/yr =kg/ha/yr
or
$g/m^2/s$ x 3.1536E+08 = kg/ha/yr

[b] Deposition analysis thresholds (DAT) for nitrogen and sulfur deposition provided by the U.S. Fish and Wildlife Service, January 2002. A DAT is the additional amount of N or S deposition within a Class I area, below which estimated impacts from a proposed new or modified source are considered insignificant.

TABLE A-1
BASELINE ACTUAL 24-HOUR EMISSIONS, NO. 1 POWER BOILER

	No. 6 Fuel Oil			Natural Gas			Total
Regulated Pollutant	Emission Factor	Activity Factors	Hourly Emissions (lb/hr)	Emission Factor	Activity Factors	Hourly Emissions (lb/hr)	Total Hourly Emissions (lb/hr)
Maximum Natural Gas Usage Day (5/28/05)							
Particulate (PM)	17.92 $lb/10^3$ gal	0 10^3 gal/day	0.00	7.6 $lb/10^6 ft^3$	5.883 $10^6 ft^3$/day	1.86	1.86
Particulate (PM_{10})	86 % of PM	--	0.00	100 % of PM	--	1.86	1.86
Nitrogen oxides	47 $lb/10^3$ gal	0 10^3 gal/day	0.00	280 $lb/10^6 ft^3$	5.883 $10^6 ft^3$/day	68.64	**68.64**
Carbon monoxide	5 $lb/10^3$ gal	0 10^3 gal/day	0.00	84 $lb/10^6 ft^3$	5.883 $10^6 ft^3$/day	20.59	**20.59**
Maximum Fuel Oil Usage Day in 2005 (3/10/05)							
Particulate (PM)	17.92 $lb/10^3$ gal	31.133 10^3 gal/day	23.25	7.6 $lb/10^6 ft^3$	0 $10^6 ft^3$/day	0.00	23.25
Particulate (PM_{10})	86 % of PM	--	20.00	100 % of PM	--	0.00	20.00
Nitrogen oxides	47 $lb/10^3$ gal	31.133 10^3 gal/day	60.97	280 $lb/10^6 ft^3$	0 $10^6 ft^3$/day	0.00	60.97
Carbon monoxide	5 $lb/10^3$ gal	31.133 10^3 gal/day	6.49	84 $lb/10^6 ft^3$	0 $10^6 ft^3$/day	0.00	6.49
Maximum Fuel Oil Usage Day in 2006 (1/11/06)							
Particulate (PM)	19.76 $lb/10^3$ gal	28.841 10^3 gal/day	23.75	7.6 $lb/10^6 ft^3$	0.007 $10^6 ft^3$/day	0.00	23.75
Particulate (PM_{10})	86 % of PM	--	20.42	100 % of PM	--	0.00	**20.43**
Nitrogen oxides	47 $lb/10^3$ gal	28.841 10^3 gal/day	56.48	280 $lb/10^6 ft^3$	0.007 $10^6 ft^3$/day	0.08	56.56
Carbon monoxide	5 $lb/10^3$ gal	28.841 10^3 gal/day	6.01	84 $lb/10^6 ft^3$	0.007 $10^6 ft^3$/day	0.02	6.03

Notes:
Refer to Table A-7 for all emission factors.

TABLE A-2
BASELINE ACTUAL 24-HOUR EMISSIONS, NO. 2 POWER BOILER

Regulated Pollutant	No. 6 Fuel Oil: Emission Factor	No. 6 Fuel Oil: Activity Factors	No. 6 Fuel Oil: Hourly Emissions (lb/hr)	Natural Gas: Emission Factor	Natural Gas: Activity Factors	Natural Gas: Hourly Emissions (lb/hr)	Total Hourly Emissions (lb/hr)
Maximum Natural Gas Usage Day (11/02/05)							
Particulate (PM)	17.92 $lb/10^3$ gal	0 10^3 gal/day	0.0	7.6 $lb/10^6 ft^3$	3.507 $10^6 ft^3$/day	1.1	1.1
Particulate (PM_{10})	86 % of PM	--	0.0	100 % of PM	--	1.1	**1.1**
Nitrogen oxides	47 $lb/10^3$ gal	0 10^3 gal/day	0.0	280 $lb/10^6 ft^3$	3.507 $10^6 ft^3$/day	40.9	**40.9**
Carbon monoxide	5 $lb/10^3$ gal	0 10^3 gal/day	0.0	84 $lb/10^6 ft^3$	3.507 $10^6 ft^3$/day	12.3	**12.3**

Notes:
Refer to Table A-7 for all emission factors.

6/23/08

✓ • Cleve - Nitrogen deposition - above Fed. Land Manager thresholds
contacted FLM, reviewed modeling inputs, conversions, etc. FLM determined that nitrogen deposition in this area was limited; since the modeled impact is just above the threshold, no add'l modeling or corrective actions were necessary.

✓ • Fuel Sulfur: I spoke w/ Dave Buff regarding the "actual sulfur levels" used to determine baseline actual emissions; we worked through about 5 of the 50 worksheets summarizing the activities and emissions levels; we reviewed the add'l information and agree that the ~~correct calculation~~ reasonable estimates were made - we were confused by the presentation

✓ • PSD Netting Analysis: If a decrease is claimed (page A.36)
must do a source-wide contemporaneous analysis of emissions increases/decreases of that pollutant.
- May not matter for SO_2, since the two projects cont. w/ SO_2 increases are PCP

D - What about the tall oil project currently being reviewed by the NED?

BEST AVAILABLE COPY

✓ — What did the original tall oil project authorize and why do you need to change it? → Netting? 0103-10/DFA

✓ — How is tall oil mixed in the tank?

✓ — Any test data for CO, NOx and PM10 emissions?

✓ Contemporaneous ~~"future" projects~~ – revised netting analysis

Proposed BACT

PM ≤ 0.030 gr/dscf @ 8% O_2

(After ESP improvements in 1996/2003, test results ranged from 0.006 to 0.020 gr/dscf @ 8% O_2

NOx ≤ 80 ppmvd @ 8% O_2 (annual avg)

w/o modifications to OFA system

Currently ≤ 45 ppmvd w/existing

CO ≤ 400 ppmvd @ 8% O_2 annual Avg,

design / combustion control

Schedule (Earl):

- Trying to time major outages for this project
- Primary - 2009 outage
-

Mitchell, Bruce

From:	Dave Weeden [Dave_Weeden@bkitech.com]
Sent:	Thursday, June 05, 2008 10:14 AM
To:	Mitchell, Bruce
Cc:	Buff, Dave; Ray Perry
Subject:	Buckeye Energy Project - RB Startup & Shutdown
Attachments:	RB Startup Shutdown.pdf

Bruce,

Per your request this morning, the following is provided to justify the excess emissions allowance of "8 hours in a 24-hour period". The attachment is a typical schedule that Buckeye uses to start up and shut down recovery boilers. This was provided to the Northeast District (dated March 31, 2006) in response to a similar question. In addition, in the same response we provided the following justification regarding recovery boilers:

> *Justification for EU 006, 007, 011:*
> The recovery boilers are subject to a nominal 7 hours startup curve plus an additional 2 hours to transition from auxiliary fuel to the primary fuel (black liquor). The main auxiliary fuel is fuel oil and excess emissions could result from fuel upsets (e.g. burner trips) or combustion problems. Unlike the other boilers, the Shutdown process takes much longer to complete. Reference the "Recovery Boiler Typical Shutdown" task sheet (attached). Item 1, pulling black liquor and firing auxiliary fuel to burn out the char bed, is a nominal 6-hour task. These units are subject to multiple visible emissions standards. The "State Standard" is not to exceed 45% except for 6-minutes of up to 60% in one hour. The "Federal Standard" is not to exceed 35% opacity with a Corrective Action triggered if 10 consecutive 6-minute periods average above 20% opacity. Recommend leaving the "**8 Hours in any 24-Hour period**" excess emissions language intact.

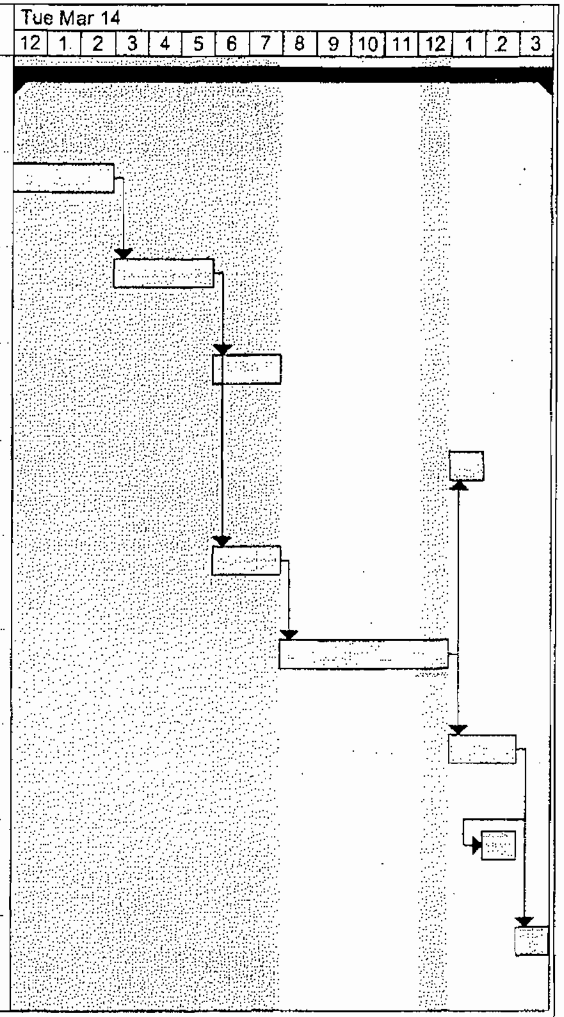
I hope this answers your question. If you need anything else, please let me know.

Dave

Dave Weeden
Environmental Program Manager
Buckeye Technologies, Inc.

(850) 584-1398
dave_weeden@bkitech.com

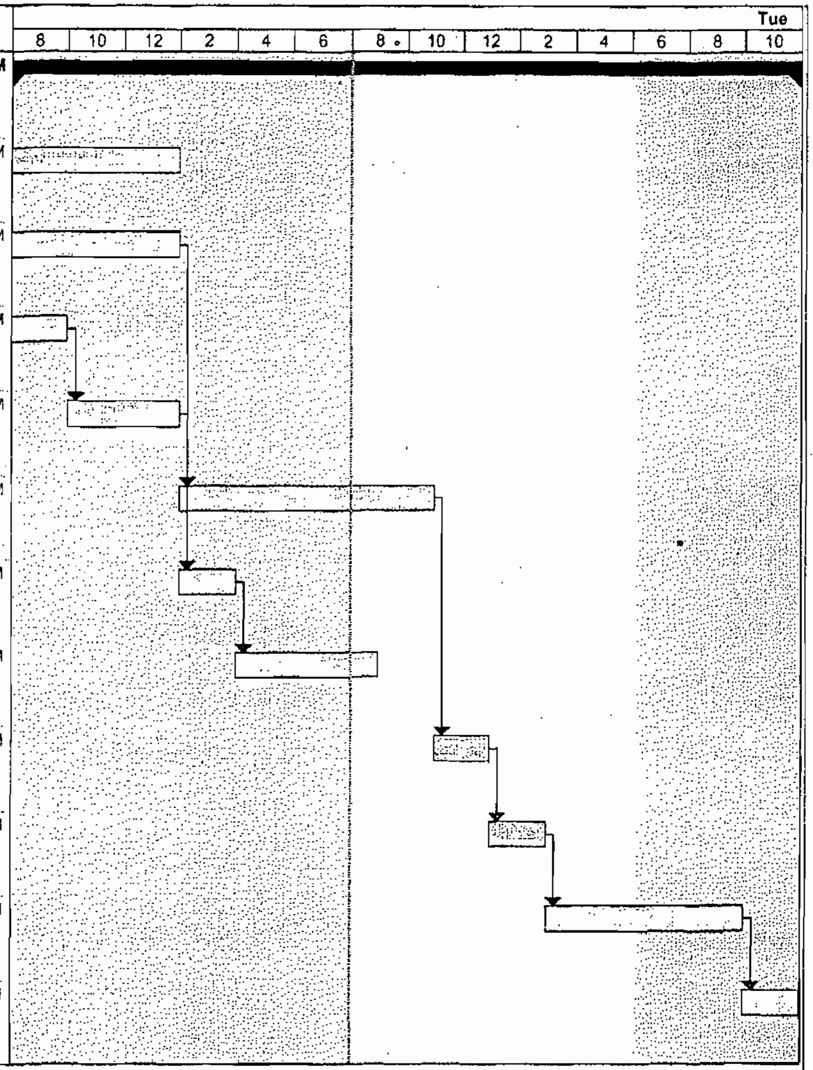
ID		Task Name	Duration	Start	Finish	Predecessors
1		**RECOVERY BOILER TYPICAL STARTUP**	**0.67 d**	**Tue 3/14/06 12:00 AM**	**Tue 3/14/06 4:00 PM**	
2		CLOSE AND UNLOCK BOILER	3 h	Tue 3/14/06 12:00 AM	Tue 3/14/06 3:00 AM	
3		DO START UP CHECKS AND PSIs	3 h	Tue 3/14/06 3:00 AM	Tue 3/14/06 6:00 AM	2
4		INSPECTION AND COLD POWER CHECK ON SECOND HALF PRECIPITATOR	2 h	Tue 3/14/06 6:00 AM	Tue 3/14/06 8:00 AM	3
5		PLACE SECOND HALF PRECIPITATOR IN SERVICE	1 h	Tue 3/14/06 1:00 PM	Tue 3/14/06 2:00 PM	7
6		RUN LONG START UP SAFE GUARDS	2 h	Tue 3/14/06 6:00 AM	Tue 3/14/06 8:00 AM	3
7		FIRE BOILER AND FOLLOW STARTUP CURVE AND GUIDELINE SHEET	5 h	Tue 3/14/06 8:00 AM	Tue 3/14/06 1:00 PM	6
8		BOILER REACHES 600PSI - STEAM AT LOW RATES	2 h	Tue 3/14/06 1:00 PM	Tue 3/14/06 3:00 PM	7
9		CHARGE LIQUOR SYSTEM	1 h	Tue 3/14/06 2:00 PM	Tue 3/14/06 3:00 PM	8FS-1 h
10		RUN BLX FIRE LIQUOR	1 h	Tue 3/14/06 3:00 PM	Tue 3/14/06 4:00 PM	8



Project: RB STARTUP TYPICAL
Date: Wed 3/15/06 11:19 AM

Task
Split
Progress
Milestone
Summary
Rolled Up Task
Rolled Up Split
Rolled Up Milestone
Rolled Up Progress
External Tasks
Project Summary

ID		Task Name	Duration	Start	Finish
1		RECOVERY BOILER - TYPICAL SHUTDOWNS	27 h	Tue 3/14/06 8:00 PM	Wed 3/15/06 11:00 PM
2		FIRE OIL - PULL LIQUOR - BURN OUT CHARBED	6 h	Tue 3/14/06 8:00 PM	Wed 3/15/06 2:00 AM
3		LOWER AIR FLOW, RAISE DRAFT FOR CHARBED BURNOUT	6 h	Tue 3/14/06 8:00 PM	Wed 3/15/06 2:00 AM
4		PUT HALF PRECIPITATOR IN MAINTENANCE MODE FOR CLEANING	1 h	Tue 3/14/06 8:00 PM	Tue 3/14/06 9:00 PM
5		COOL THE HALF PRECIPITATOR FOR CLEANING	6 h	Tue 3/14/06 9:00 PM	Wed 3/15/06 3:00 AM
6		DRY CLEAN THE HALF PRECIPITATOR	8 h	Wed 3/15/06 3:00 AM	Wed 3/15/06 11:00 AM
7		BED BURNOUT COMPLETE - DO SAFEGUARDS	2 h	Wed 3/15/06 2:00 AM	Wed 3/15/06 4:00 AM
8		PULL LAST OIL FIRE - START COOL DOWN	5 h	Wed 3/15/06 4:00 AM	Wed 3/15/06 9:00 AM
9		INSPECT AND COLD POWER CHECK THE FIRST HALF PRECIPITATOR	2 h	Wed 3/15/06 11:00 AM	Wed 3/15/06 1:00 PM
10		SWAP PRECIPITATOR HALVES FOR CLEANING	2 h	Wed 3/15/06 1:00 PM	Wed 3/15/06 3:00 PM
11		DRY CLEAN THE SECOND HALF PRECIPITATOR	6 h	Wed 3/15/06 3:00 PM	Wed 3/15/06 9:00 PM
12		INSPECT AND COLD POWER CHECK THE SECOND HALF PRECIPITATOR	2 h	Wed 3/15/06 9:00 PM	Wed 3/15/06 11:00 PM



Project: #2RBMW01
Date: Wed 3/15/06 11:22 AM

Task	Summary	Rolled Up Progress	Split
Progress	Rolled Up Task	External Tasks	Rolled Up Split
Milestone	Rolled Up Milestone	Project Summary	

established under Rule 62-204.260, F.A.C., is the earliest date after August 7, 1977, for particulate matter and sulfur dioxide, and February 8, 1988, for nitrogen dioxide, that a facility or a modification subject to preconstruction review under 40 C.F.R. 52.21, Rule 17-2.500 (transferred), or Rule 62-212.400, F.A.C., submits a complete application for permit under such regulations provided that:

(a) On the date the complete application is filed, the area in which the facility or modification would be constructed is designated as attainment or unclassifiable for the applicable pollutant under 42 U.S.C. Section 7407(d)(1) of the Clean Air Act (if the application is filed under 40 C.F.R. 52.21), or as a PSD area under Rule 17-2.450 (transferred), 62-275.700 (repealed), or 62-204.360, F.A.C., (if the application is filed under Rule 17-2.500 (transferred) or 62-212.400, F.A.C.); and

(b) In the case of a facility, the emissions of the applicable pollutant would be equal to or greater than the significant emissions rate as defined under Rule 62-210.200, F.A.C., or, in the case of modification, there would be a significant net emissions increase of the pollutant.

(201) "Method of Operation" – For purposes of the Title V source permitting program, a procedure to operate one or more specific emissions units within a Title V source in a particular manner which may affect air pollutant emissions.

(202) "Mode of Operation" – For purposes of the Title V source permitting program, a method of operation that involves two or more specific air emissions units in emissions trading pursuant to Rule 62-213.415, F.A.C.

(203) "Modification" – Any physical change in, change in the method of operation of, or addition to a facility which would result in an increase in the actual emissions of any air pollutant subject to regulation under the Act, including any not previously emitted, from any emissions unit or facility.

(a) A physical change or change in the method of operation shall not include:

1. Routine maintenance, repair, or replacement of component parts of an emissions unit; or

2. A change in ownership of an emissions unit or facility.

(b) For any pollutant that is specifically regulated by the EPA under the Clean Air Act, a change in the method of operation shall not include an increase in the hours of operation or in the production rate, unless such change would be prohibited under any federally enforceable permit condition which was established after January 6, 1975.

(c) For any pollutant that is not specifically regulated by the EPA under the Clean Air Act, a change in the method of operation shall not include an increase in the hours of operation or in the production rate, unless such change would exceed any restriction on hours of operation or production rate included in any applicable Department air construction or air operation permit.

(204) "Molten Sulfur Storage and Handling Facility" – A facility designed and utilized for unloading, transferring or storing elemental sulfur in liquid form from ships, barges, railcars, trucks or other methods of water or land transport to heated storage tanks.

(205) "Multiple Effect Evaporator System" – The multiple effect evaporators and concentrators and associated condenser(s) and hotwell(s) used to concentrate the spent cooking liquor (black liquor) that is separated from the pulp.

(206) "Natural Conditions" – Naturally occurring phenomena that reduce visibility as measured in terms of visual range, contrast, or coloration.

(207) "Natural Finish Hardwood Plywood Panels" – Panels whose original grain pattern is enhanced by essentially transparent finishes frequently supplemented by fillers and toners.

(208) "Net Emissions Increase" –

(a) With respect to any PSD pollutant emitted by a major stationary source, the amount by which the sum of the following exceeds zero (0):

1. The increase in emissions from a particular physical change or change in the method of operation as calculated pursuant to paragraph 62-212.400(2)(a), F.A.C.; and

2. Any other increases and decreases in actual emissions at the major stationary source that are contemporaneous with the particular change and are creditable. Baseline actual emissions for calculating increases and decreases under this subparagraph shall be determined as provided by the definition of "baseline actual emissions", except that subparagraphs (a)3. and (b)4. of such definition shall not apply.

(b) An increase or decrease in actual emissions is contemporaneous with the increase from the particular change only if it occurs between:

1. The date five years before construction on the particular change commences; and

2. The date that the increase from the particular change occurs.

(c) An increase or decrease in actual emissions is creditable only if the Department has not relied on it in issuing a permit for the source Rule 62-212.400, F.A.C. or Rule 62-212.500, F.A.C., which permit is in effect when the increase in actual emissions from the particular change occurs.

(d) An increase or decrease in actual emissions of sulfur dioxide, particulate matter, or nitrogen oxides that occurs before the applicable minor source baseline date is creditable only if it is required to be considered in calculating the amount of maximum allowable increases remaining available.

(e) An increase in actual emissions is creditable only to the extent that the new level of actual emissions exceeds the old level.

(f) A decrease in actual emissions is creditable only to the extent that:

1. The old level of actual emissions or the old level of allowable emissions, whichever is lower, exceeds the new level of actual emissions;

2. It is federally enforceable as a practical matter at and after the time that actual construction on the particular change begins; and

3. It has approximately the same qualitative significance for public health and welfare as that attributed to the increase from the particular change.

(g) An increase that results from a physical change at a source occurs when the emissions unit on which construction occurred becomes operational and begins to emit a particular pollutant. Any replacement unit that requires shakedown becomes operational only after a reasonable shakedown period, not to exceed 180 days.

(h) Paragraph (a) of the definition of "actual emissions" shall not apply for determining creditable increases and decreases.

(209) "Neutral Sulfite Semichemical (NSSC) Pulping Operation" – Any series of unit operations in which pulp is produced from wood by cooking (digesting) wood chips in a solution of sodium sulfite and sodium bicarbonate, followed by mechanical defibrating (grinding).

(210) "New Design Direct-Fired Kraft Recovery Furnace" – Any new design kraft recovery furnace which was initially designed and constructed to burn black liquor received from a multiple effect evaporator system using a noncontact evaporator or concentrator to achieve the final level of solids concentration rather than a direct contact evaporator system connected to the kraft recovery furnace duct work.

(211) "New Design Direct-Fired Suspension-Burning Kraft Recovery Furnace" – Any new design direct-fired kraft recovery furnace designed to evaporate remaining water from and burn the organic content of a spray of finely divided concentrated black liquor droplets while the droplets are in suspension. Such a furnace will have only two levels of air introduction (primary and secondary) and a flat hearth with the smelt spouts located above the hearth.

(212) "New Design Kraft Recovery Furnace" – Any straight kraft recovery furnace which is of "membrane wall" construction to minimize air in-leakage and has an adjustable air introduction system to deliver an adequate quantity of air while providing both effective air distribution and penetration into the furnace. The air induction system on "new design" Babcock & Wilcox furnaces will consist of primary, secondary, and tertiary ports. In Combustion Engineering units the secondary air (introduced above the black liquor gun elevation) will be introduced tangentially.

(213) "New Emissions Unit" – An emissions unit which is not in existence, for which an application for a permit to construct has not been submitted before the effective date of an applicable section or provision. For the purposes of Rule 62-212.400, F.A.C., a new emissions unit is any emission unit that is or will be newly constructed and that has enlisted for less than 2 years from the date of beginning normal operation.

(214) "Nitric Acid Plant" – Any facility producing weak nitric acid by employing either the pressure or atmospheric pressure process.

(215) "Nonattainment Area" – Any area not meeting ambient air quality standards and designated as a nonattainment area under Rule 62-204.340, F.A.C. Such an area may be designated as a particulate, sulfur dioxide, nitrogen dioxide, carbon monoxide, lead or ozone nonattainment area, depending on which ambient standard has been violated. An area may be designated as nonattainment for more than one air pollutant. Ozone nonattainment areas may be transitional, marginal, moderate, serious, severe, or extreme as classified in Rule 62-204.340, F.A.C.

(216) "Non-heatset" – A lithographic printing process where the printing inks are set without the use of heat. Traditional non-heatset inks set and dry by absorption and/or oxidation of the ink oils. Ultraviolet-cured, thermography and electron beam-cured inks are considered non-heatset although radiant energy is required to cure these inks.

(217) "Objectionable Odor" – Any odor present in the outdoor atmosphere which by itself or in combination with other

AGENDA

Buckeye Energy Independence Project

June 26, 2007

DARM Conference Room
Tallahassee, FL

I.	Introductions	All
II	Meeting Objective	Dave Weeden
III.	Project Overview	Earle Greene/Mike Camp
IV.	PSD Implications	David Buff
V.	Questions/Discussion	All

Buckeye – 6/25/07

"Foley Energy Independence Project"

- Goal: produce more power for internal use
- Use more biomass, less FF
- New turbine-generator
- Mods to two recovery boilers
- Implemented in 2-3 phases over a period of time
- Presentation given by "Earl"

~72 MW

will help w/ regulating steam flow/pressure to Force up CBs

- Install condensing steam generator ("turbo generator?)
- Modify 2 RBs (upgrade to "low-odor" design)
- Implement small "energy conservation" projects

- PBs fire oil/gas would be used during outages for RBs and bark boilers

Submit August

- Schedule
  - $40-45 million for project
  - 3-5 year project
    - condensing turbine generator (2-2 1/2 ~~years~~)
    - RBs
    - RB

No real work to bark boilers

150 days on FF

oil/gas gas

increase in annual biomass

- PSD
  - Affected Units: RBs, PB, BB
  - Black liquor oxidation system will be shutdown (how were emissions determined?)
  - PSD PM, PM_{10}, NOx, CO
  - NCGs → No. 1 BB
  - No. 1 PB is back up

TRS scrubber

better combustion lower gas flow

support outages of other boilers (PB 1, PB 2)

after project similar to No. 4 RB

III.B.1. ACCUMULATION OF EMISSIONS

If the proposed emissions increase at a major source is by itself (without considering any decreases) less than "significant", EPA policy does not require consideration of previous contemporaneous small (i.e., less than significant) emissions increases at the source. In other words, the netting equation (the summation of contemporaneous emissions increases and decreases) is not triggered unless there will be a significant emissions increase from the proposed modification.

For example, a major source experienced less than significant increases of NO_x (30 tpy) and SO_2 (15 tpy) 2 years ago, and a decrease of SO_2 (50 tpy) 3 years ago. The source now proposes to add a new process unit with an associated emissions increase of 35 tpy NO_x and 80 tpy SO_2. For SO_2, the proposed 80 tpy increase from the modification by itself (before netting) is significant. The contemporaneous net emissions change is determined, by taking the algebraic sum of (-50) and (+15) and (+80), which equals +45 tpy. Therefore, the proposed modification is a major modification and a PSD review for SO_2 is required. However, the NO_x increase from the proposed modification is by itself less than significant. Consequently, netting for PSD applicability purposes is not performed for NO_x (even though the modification is major for SO_2) and a PSD review is not needed for NO_x.

It is important to note that when any emissions decrease is claimed (including those associated with the proposed modification), all source-wide creditable and contemporaneous emissions increases and decreases of the pollutant subject to netting must be included in the PSD applicability determination.

A deliberate decision to split an otherwise "significant" project into two or more smaller projects to avoid PSD review would be viewed as circumvention and would subject the entire project to enforcement action if construction on any of the small projects commences without a valid PSD permit.

For example, an automobile and truck tire manufacturing plant, an existing major source, plans to increase its production of both types