Rayonier

Performance Fibers

Fernandina Mill

October 20, 2005

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OCT 25 2005

BUREAU OF AIR REGULATION

Certified Mail, Return Receipt Requested

Mr. Jeffery F. Koerner, P. E.
Bureau of Air Regulation
Division of Air Resources Management
2600 Blair Stone Road, MS 5505
Tallahassee, FL 32399-2400

RE: October 12, 2005 completed letter Response regarding
Request to Install No. 6 Power Boiler, and the No.6 Batch Digester system
0890004-018-AC

Dear Mr. Koerner:

I am responding to your letter of October 12, 2005 requesting further information regarding Rayonier's application for No. 6 power boiler and to increase the production cap taken at the installation of No. 6 digester. Our responses follow in the same order as presented in your letter. The questions have not been repeated.

1. Please refer to page A.37 of the New Source Review Manual of 1990. This page gives guidance on evaluating separate, multiple, and minor projects to determine if they should be considered a single project. EPA guidance recommends asking two questions: First, Are the projects proposed at the same time? And second, Could the changes be considered as part of a single project?

A. Are the projects proposed at the same time?
The actual physical projects were proposed at greatly different times. The No. 6 digester was installed in 1998 and the No. 6 boiler is of course currently proposed. All the present permit amendment requests is a production increase which requires a new review of the emissions increases that could be expected from the installation of No. 6 digester. As stated in the application these two projects have been combined in this application for ease of permitting and were not proposed at the same time for any other reason. The events driving the two projects are different and occurred at different times.

The boiler project started because the maintenance costs have risen over the years and the facility was facing another major capital outlay for rebuilding boilers. Several boilers became available due to recent closures and boiler replacement was reconsidered. As an alternative we could simply overhaul the existing boilers and continue to use them, maintaining their reliability to produce sufficient steam for the proposed production.

The digester installation began as a means to meet then existing commercial demand while taking digesters out of service for extended periods of maintenance. Since that time, a major competitor has left the dissolving pulp market and the facility now seeks to obtain a portion of the abandoned market before foreign competitors position themselves to meet that market demand. These events have occurred over the past several years. Realizing the full production increase made possible by the 1998 digester installation will take several years, as Rayonier will have to build market and upgrade certain process segments.

Because an application already was being prepared for the boiler, it was decided to add the separate production increase project at this time. The projects are presented in one application to spare both the DEP and Rayonier processing two permits instead of one.

B. Could the changes be considered as part of a single project?
These projects are not related. The permit application demonstrates this fact by showing that the boiler could be replaced without the production increase, and more importantly, the production increase could take place without the new boiler. The existing power boilers have sufficient steaming capacity to achieve the proposed production level and the recovery boiler has routinely operated at the higher operating rate.

In considering an issue such as this, EPA refers to its analysis as the "Circumvention Test." All of the guidance documents emphasize the importance of evaluating a source's intent in undertaking two projects. It is clear in making this analysis that the evidence of intent to circumvent NSR must be clear and convincing.

In the extreme case where the source has made a deliberate effort to circumvent PSD review (by the systematic construction of carefully sized emissions units which only in the aggregate would trigger review) a permitting agency may, however, make a finding that PSD applies to the total plant. Such a finding would have to be based on clear evidence that the source made a conscious effort to escape review by knowingly misrepresenting the intended source size through the calculated juggling of actual and scheduled construction of emission units.

U.S. EPA Region 10 PSD Applicability Determination, dated October 12, 2001, citing EPA Guidance Document dated October 21, 1986, entitled *Applicability of PSD to Portions of a Plant Construction in Phases Without Permits.*

No evidence in the present case would support a finding that Rayonier is attempting to circumvent NSR by disassociating two related projects. To the contrary, one project is driven by maintenance costs and concerns while the other is based upon a change in market dynamics.

2. None of the three air construction permits referenced in your letter could be considered contemporaneous emissions increases.

Project No. 08900004-014-AC: Brinks bypass AC - This Air construction permit allowed temporary and partial opening of the Brinks by-pass value to elevate stack particulates during testing to calibrate a new beta attenuation type particulate monitor.
The project lasted only a couple of days during the test.

Project no. 08900004-015-AC: Heat Input AC-Power boilers - This Air Construction Permit increased the permitted heat input to the existing three power boilers, but decreased the emission rate so that there was no increase in allowed (potential) emissions. No physical or operational change was made. No actual or potential emission changes resulted.

Project No. 08900004-017-AC: Subpart MM/Used Oil – This Air Construction Permit imposed the new 40 CFR Part 63, Subpart MM provisions which applied only to the recovery boiler. These provisions do not in any way apply to the power boilers. The Used Oil portion of the permit included reference to the fact that on-site generated on spec used oil is burned in the power boilers. After testing to demonstrate the Used Oil is on-spec, the used oil is loaded into the day tank along with the #6 oil being fed to the boilers. There are no emission factors for used oil. Used oil happens to be lower in ash and thus should form less particulate than the basic fuel - #6 oil. However, only 6,160 gallons of used oil was burned in 2004 vs 20,382,726 gallons of #6 oil. Any difference in emissions one way or the other is insignificant. (See also the projected emissions from burning Used Oil presented in answer to question 4.)

3. This application is not a PSD application. Thus no fee is provided.

4. Tire Derived Fuel (TDF) is delivered by truck which will be emptied into a bin as shown on Attachment 6 to the application. TDF will be metered onto the fuel conveyor feeding the boiler as shown on Attachment 6. TDF most likely used will be to augment Btu input when the waste wood fuel is wet. However, the boiler will be designed to produce twenty percent of its maximum Btus on TDF. The boiler is being permitted at 525 mmBtu/hr maximum, but at 450 mmBtu/hr annual average. Twenty percent of the maximum hourly operating rate is used to estimate maximum hourly fuel inputs and twenty percent of the annual average operating rate is used to estimate annual fuel input. TDF has a heat content of 15,500 Btu/lb. The metal emissions are estimated based on literature studies, specifically NCASI Technical Bulletin 906 "Alternative Fuels Used in the Forest Products Industry – Their Composition and Impact on Emissions" for the fuel analysis and the emission controls from the ESP and scrubber were conservatively estimated at 99.5%. The table below presents these results. These emissions are quite

small and do not trigger any sort of MACT review for hazardous Air Pollutants, which required 10 ton per year of any single pollutant or 25 tons per year of all combined.

Tire Derived Fuel Inputs and Emissions

TDF Hourly Rates		**ppm**							
Operating Rate mmBtu/hr	TDF Feed	Arsenic	Beryllium	Cadmium	Lead	Manganese	Mercury	Nickel	Selenium
ppm metal in fuel		3.82	0.03	1.1	70.65	470	0.011	30.95	0.71
		lbs/hr							
525 mmBtu/hr	3.39 ton/hr	0.0001293	1.016E-06	3.73E-05	0.002393	0.0159	3.73E-07	0.0010	2.41E-05
TDF Annual Rates		**Tons/year**							
450 mmBtu/hr	25432 tons/yr	0.00049	3.81 E-06	0.00014	0.00898	0.0598	1.399 E-06	0.003936	9.03E-05

Used Oil
Used Oil is a regulatory term for On-Specification Used Oil as defined by 40 CFR Part 279. This Part allows those who generate Waste Oil to follow specific procedures to handle it as Used Oil and to burn only that oil generated on-site provided it meets the analytical specifications. Florida has adopted this same rule at 62-710.210 FAC. Rayonier manages its Used Oil in accordance with these regulations. Used Oil is managed in a separate building with spill control until the oil is sampled and analyzed to prove it meets the definition of On-Specification which allows it to be burned on-site. The Used Oil is then transferred to the main #6 oil storage tank, from which it is eventually sent to a day tank and thence to a boiler. There is no reason to expect the Used Oil generated and burned in any future year will be any different than in 2004. Most of the Used Oil is hydraulic oil and gear box lubricating oil, and a very little engine crankcase oil. The Table below presents the throughput and emissions of those substances of which an analysis is required by 62-710.210 based on 8760 hrs per year.

Throughput	Arsenic (not detected)	Cadmium (not detected)	Chromium (not detected)	Lead (3 ppm avg 7 detects of 13 samples)	Total Halogens as Cl (241 ppm average of 9 detects of 13 samples)
6160 gal/yr	0 lbs/yr	0 lbs/yr	0 lbs/yr	0.157 lbs/yr	12.62 lbs/yr
0.703 gal/hr	0 lbs/hr	0 lbs/hr	0 lbs/hr	1.8E-05 lbs/hr	0.00144 lbs/hr

5. A spreadsheet is attached (Attachment 1) which includes the calculations and emissions factors utilized to provide the basis for this discussion on issue 5. This spreadsheet includes all calculations, emission factors and assumptions. It is apparent that production may not be the best surrogate for emissions because all emission points are equipped with emission reduction equipment, thus the relationship is not always one-to-one. There is no other surrogate and Rayonier is willing to maintain production as the surrogate. We discuss each of the manufacturing segments you mentioned in this request separately.

Pulping Operations

The sulfur dioxide and VOC's are the only pollutants emitted from the one pulping area vent. Sulfur dioxide is the chief pulping chemical in a sulfite mill and every attempt is made to capture and recycle it. There are four absorption towers in the pulping system that capture and recycle escaping sulfur dioxide, after which there is a final scrubber known in the permit as the Vent Gas Scrubber which polishes these collected gas streams before emission. Sulfur dioxide that is not recycled is lost to the process and must be made up by burning molten sulfur or purchasing very expensive liquid sulfur dioxide. The mill has economic incentives to collect sulfur dioxide.

Table 13 from Attachment 5 to the application reproduced in the attached spreadsheet (row #18), shows a steady decrease in sulfur dioxide emissions since 2000. This is due to improvements in the absorption systems limiting the amount of SO2 going to the vent gas scrubber. Nevertheless, the highest emissions in the last 5 years, which occurred in 2000/2001, was used as the baseline year because it calculates the greatest increase in emissions. By rights, Rayonier could use the same baseline years for sulfur dioxide that it used for VOC, 2003/2004, and the increase in sulfur dioxide emissions would calculate to 2.05 tons per year, down from 10.92 tons per year. We have maintained the 2000/2001 baseline for sulfur dioxide because it produces the most conservative analysis.

VOCs, 98 percent of which is methanol, are formed in the digestion process. The quantity of methanol produced depends on the grade of pulp being produced. However, Rayonier has always calculated these emissions based on the worst case grade thereby over estimating emissions. These VOCs pass through all the sulfur dioxide capture equipment including the vent gas scrubber but are captured by a new condenser installed to meet the new Part 63, Subpart S standards. The efficiency of the methanol capture depends on the amount of fresh water used in this new condenser which lowers gas temperature. Fresh water usage is always minimized to conserve ground water. Methanol emissions have been tested annually and have been found to be stable. This testing also checks the efficiency of the methanol condenser for a given exit gas temperature and fresh water flow rate.

The spreadsheet provides the production rate change history [row 4] and a copy of Table 13 from the application [row 18]. Also included is the pulping [vent gas scrubber] section of the AOR calculations for 2004 [row 74]. Following Table 13 is the Pulping System data [row 55 – 72].

Bleaching Operations

The parameters of interest for the bleaching operation are VOCs represented by methanol and CO. The spreadsheet section [row 252] under bleaching operations shows the Ton/yr VOC increase with production assuming no heat recovery from the hot caustic extraction stage emissions. As explained in the application a heat recovery condenser system will be installed which will capture and allow for the biological removal of the methanol.

CO emissions are explained in the application. The very conservative factor for CO emissions per ton of production is used to derive the table in the spreadsheet [row 252] under bleaching operations. The tables constructed in the spreadsheet show the production for 1996, 2003, 2004 and the proposed PSD tonnages. The information will not directly relate to that in Table 13 [row 224] since the changes in Table 13 are based on the baseline years, whereas the spreadsheet tables show changes from 1996.

Chemical Recovery Process

The parameters of concern are SO_2 and VOC. As discussed in the section on pulping, SO_2 is an integral part of the sulfite process and is captured and reused wherever possible. All of the process vents in the evaporator and recovery area are captured. They are piped to the recovery boiler scrubber for absorption and return to pulping liquor preparation in the acid plant as ammonium bisulfite. The emissions are again directly related to the capability of the absorption equipment and the amount of base applied to capture the SO_2. For the recovery process the base, ammonia is also used in the cooking process, so a high rate of SO_2 capture is financially beneficial. Therefore, there is no direct relationship between SO_2 emissions and production rate. However to answer the question presented, a table [row 263] is provided showing the potential for SO_2 losses from burning spent sulfite liquor with no SO_2 capture equipment.

VOC from the evaporators are chiefly methanol. Condensers now control methanol emissions. The attached spreadsheet provides VOC information from the 2004 AOR [rows 273 through 444]. The tonnage of VOC emitted from this area presented on a production basis is in the table at row 466 in the spreadsheet.

We disagree that the recovery boiler must be included in the netting analysis. In the application we pointed to the provision 40 CFR 52.21(b)(41)(ii)(c) which is part the federal New Source Review ("NSR") reform regulation and has been upheld in a recent D.C. Circuit Court of Appeals decision. Florida has proposed to adopt the federal rule, including this provision. The public hearing on the proposed rule is scheduled for

October 28 and Clean Air Act deadlines require the State of Florida to adopt its NSR rule revisions by December 31, 2005.

But we are not suggesting that the Department must "jump the gun" in implementing the above referenced provision out of the new rules package in order to recognize that a PSD emissions analysis of a "modification" must only include emission increases caused by a proposed physical change. In the Technical Support Document for its NSR rule changes, *Technical Support Document for the Prevention of Significant Deterioration and Nonattainment Area New Source Review Regulations, November 2002,* EPA recognized that the Clean Air Act and the implementing regulations require that there must be "a causal link between the proposed change and any post change increase in emissions" (at p. 1-4-37). Specifically, the definition of modification references "any physical change or change in the method of operation that would result in a significant net emissions increase . . . (at p. 1-4-37)." Thus, the "demand growth" exclusion that is a part of the existing federal NSR rules and is proposed to be included in the Florida rules is merely a codification of the definition of "modification" as set forth in the Clean Air Act and the implementing regulations. Accordingly, we have suggested that the proposed rule be referenced as an appropriate means of applying the causal standard that currently is mandated by the Clean Air Act.

6. With all things being approximately equal the emissions from one year to the next with the same number of operating hours will be approximately the same. However the Annual Operating report is based on the best information available when the report is prepared. As described for each pollutant below, new test or monitoring data became available and was used to calculate emission. Thus other factors are also involved in determining total emissions not just operating hours as demonstrated in the following review of the parameters in question.

This table summarized the emissions in Tons/year from the AORs for 2000-2004:

This table summarized the emissions in tons/year from the AORs for 2000-2004:

Recovery Boiler SSL Fired						
Parameter		**2004**	**2003**	**2002**	**2001**	**2000**
Net Production ADMT/yr		145,883	144,975	145,895	146,247	151,515
Production ADUBT/yr		223,276	223,692	217,383	223,669	214,703
Operating Hours / year		8,072	7,871	7,970	8,177	8,423
CO	Ton/yr	411	271	430	409	429
NOx	Ton/yr	2,070	916	904	925	1,032
PM	Ton/yr	84	48	77	212	194
PM10	Ton/yr	75	43	69	190	169

Carbon Monoxide
From the table it is evident that 2003 was the year with more unusual results. The attached spreadsheet (Attachment 2) has copies of the actual calculations provided to the FDEP for verification of the AOR. For the years 2000 through 2002 the CO emissions were based on the last good [operable meter reading] CO emissions data from the recovery boiler meter which were from 1999 at 187 ppm CO. In 2003 the meter was again operable and averaged 137 ppm CO for the year. In 2004 the meter averaged 195 ppm CO. The flue gas volumetric flow rate and the operating hours were similar for each year, so the CO concentration was the determining factor for emissions reported.

Nitrogen Oxides
For all the years from 1995 through 2003 the only NOx data available was from a 1995 stack test at 245 lb NOx / hr. In 2004 the recovery boiler emissions were tested for NOx at the same time as the annual particulate testing. During this testing the NOx was measured at 525 lb NOx/hr [605 ppmV NOx]. Since this was a considerable change from our historic emissions value, in 2005 NOx was again tested when the particulate testing was done. In 2005 the NOx averaged 600 ppmV NOx for the three one-hour tests. Therefore the mill is confident the 2004 AOR NOx emissions reported are correct.

Particulate and PM10
In 2002 the mill completed a program of changing out our mist filter candles with Monsanto polyester fiber units. As shown in the attached spreadsheet, the particulate emissions dropped from the 40-50 lb/hr range of 2000-2001 to the 15-25 range of 2002-2004. The 2005 stack test for PM was at 22 lb PM/hr. Therefore the normal PM emissions level with the new candles is between 45 and 85 Tons/year compared to 190 to 215 Tons/year earlier. Although there was a doubling of emissions between 2003 and 2004, this doubling was at a much lower level of emissions. The reason for the lower emission rate for 2003 at 13 lb PM/hr compared to 22-24 lb PM/hr for 2002, 2004 & 2005 is unknown, but the 22 lb PM/hr [84 Ton/yr] for 2004 is a representative level of PM emissions.

PM10 is calculated from PM and varies accordingly.

7. Other than CEM and CMS, the only required emissions testing under the mill's Title V permit is for particulate. Particulate testing notification is provided to the FDEP NE District Office verbally, via e-mail or via fax before each particulate testing. All particulate tests have been provided to the FDEP.

Attachment 5, appendix A of the application provided the source information for each parameter's emissions for 2000-2004. The following is a discussion of this source information and any additional testing that was completed.

Nitrogen Dioxide
In all cases of oil burning in the power boilers, the AP 42 factor [47 lb NOx / kgal oil] was used with the actual oil burned during the year to determine the Tons NOx/yr emitted.

For bark burning, NOx emissions before 2004 were from the AP 42 factor [0.22 lb NOx / MMBTU heat input from bark]. The bark heat input was calculated based on 5,000 BTU/lb wet bark. The quantity of bark burned per year for each boiler is calculated from steam output from the boiler divided by the boiler efficiency of 55% minus the heat input from oil for the year. This calculation is used since there is only one bark weightometer for the two boilers and no accurate way to determine how much of the bark goes to each boiler. The steam meter is very accurate and the efficiency has been determined over the years [and is common for this vintage and type of boiler]. All of these calculations are provided in spreadsheet form to the FDEP with each AOR submission.

In 2004 a NOx concentration analysis was run concurrently with the PM testing. The results are presented in the attached (Attachment 3) spreadsheet. The heat input rate calculations for the stack tests are also included on the spreadsheet. Based on these results there were 387 Tons NOx emitted in 2004. The calculations used to derive the 299 Tons NOx emitted in 2004 are thoroughly explained in the application. The reports for the 2004 and 2005 NOx tests are attached. All test runs have been included.

Carbon Monoxide, Sulfur Dioxide and Volatile Organic Carbon
There were no tests conducted for VOC and all calculations are based on AP-42 factors. The test results for CO and SO2 are included in the attached tables and test reports for 2004 and 2005.

8. Rayonier is purchasing this boiler from the salvage vendor, not from Smurfit. The limited records we have been able obtain were made available in the interest of determining the value in the existing boiler. Detailed maintenance records are much harder to obtain from a mill that has been closed for at least 5 years. Rayonier was made aware of modifications made to bring the boiler's particulate emissions into compliance. However, these costs are not pertinent as at that time Smurfit controlled particulates with a wet scrubber. Rayonier is proposing to use an ESP for particulate control and the wet scrubber for SO_2 control. Per guidance, control equipment is not included in the reconstruction analysis.

To the extent your question anticipates the issue of "aggregation" for purposes of crossing the 50 percent threshold leading to new source review, it is patently clear that anything the previous owner did is completely unrelated to the conversion Rayonier is making. Therefore, aggregation can not be an issue.

You have asked us to verify the conversion cost from a stoker to bubbling bed boiler. Rayonier now has a contract for this conversion so we are as certain as we can be of the costs presented in the reconstruction analysis provided in Attachment 5 to the Application.

In regard to the U.S. Sugar facility in Clewiston, it should be remembered that the facility is only a 600 psi boiler. The facility proposed for Rayonier at Fernandina, No. 6 boiler, is a 900 psi boiler. There is considerable difference in the metallurgy required for the higher pressure boiler, also pipe and welding thickness are greater and the higher pressure required post-weld heat treating. The steam drum alone is 1 inch thicker in the 900 psi boiler. This is a large diameter vessel inside the boiler adding considerably to the cost. Steel and concrete prices have increase dramatically over the past several years since the Clewiston facility was constructed. With the recent energy crises further inflation is expected. Though we do not know the cost of the Clewiston facility, from our experience in negotiating for these materials it is doubtful this facility could be built for $40 million today.

9. As explained on pages 11 and 12 of the Project Description, Attachment 5 to the Application, the maximum emissions could not exceed the applicable New Source Performance Standards for the 1983 boiler. These limits were given in Table 3. No emission rates proposed for the converted boiler are greater than these emissions. These proposed rates were also given in Table 3. Table 3 is reproduced here for your convenience. It can be confidently concluded the emission rates for the new boiler will not exceed those of the old 1983 boiler.

Table 3. 40 CFR Part 60 Subpart D limits in 1983

Pollutant	**Limit in lbs/mmBtu unless indicated**	**Expected New Limit in lbs/mmBtu unless indicated**
PM	0.10	0.07
Opacity	=<20% except 6/hour<27%	=<20% except 6/hr<27%
SO_2 solid fossil fuel	1.2	NA
SO_2 liquid fossil fuel	0.8	0.8
NOx	0.3	0.3[1]

[1]For NSR purposes the facility will be accepting a lower limit for NO_x.

It is noted that the Department has proposed language for its NSR reform rule at 62-204.200(1)(b) that unit-specific allowable emissions for an emissions unit are equivalent to the actual emissions for the emissions unit provided that such unit- specific allowable emissions limits are federally enforceable.

10. A comparison of the emission rates and dispersion characteristics of the existing stack with the proposed stack was provided in letter faxed from David Tudor to you and Bruce Mitchell dated October 12, 2005. That comparison is provided again below. It demonstrates there is no reason to repeat modeling this source.

In regard to the modeling questions, to save the Department modelers a little time, the table below presents the stack parameters in the modeling done in 1992 and those for the new boiler. This modeling was submitted to address the elevated ambient SO_2 levels due to downwashing Rayonier boiler stacks found by the modeling done for the Smurfit project. The five years of meteorological data were 1982 – 1986. As you can see the new boilers stack height and stack gas velocity are higher, stack exit temperature is about the same as there are wet scrubbers on the old boilers and the new boiler, and SO_2 emissions rates are lower than in the existing units. Both the remaining emissions at the facility, recovery boiler and vent gas scrubber were modeled at permitted levels and those have not changed. Every parameter used in modeling would predict lower SO_2 impacts. The new stack is less than 600 feet from the old stack. There is little reason to remodel.

	#1&2	**#3**	**#6**
stack height (meters)	37.2	37.2	57.91
stack temp. (deg K)	336	329	338
stack velocity (m/sec)	9.75	9.75	11.8
SO2 emission (gm/sec)	81.18	40.48	7.42

11. Steam data began being collected automatically and digitally about October 13, 2000. Data prior to October 2000 was manually collected and was not readily available. To use it would require manual entry of many data points, a process prone to error. The data was collected at regular intervals and written on paper. We elected to omit calculations for the year 2000 since only one quarter of data was available digitally.

12. The emission factors, activity factors and annual estimates for each boiler are provided in Attachment 1 for issue number 5. The power boiler calculations are presented on rows 535 through 1416.

The maximum steam production for 2003 and 2004 are provided below:

Maximum Steam Production 1000 lb/hr				
Year	No. 1 PB	No. 2 PB	No. 3 PB	Total PB
2003	96	117	136	344
2004	94	109	137	339
Capacity	120	120	135	375

The maximum production level was very consistent for the two years. Maximum production is generally required only when the recovery boiler is down for repair. When this happens the oil usage for the three power boilers increases by a factor of 2 to 3 over the average and the bark usage drops to about 70% of average usage. The bark usage drops because the boilers become air limited when they are maximized for steam production and it takes less air to burn oil.

13. As you know, without SO_2 CEMs we are not allowed to take credit for SO_2 removal. We pay fees assuming the entire sulfur input from the oil is converted into SO_2. For estimating emissions we have generally used 90% removal. Both scrubbers, all three boilers, were last tested in 2004. The average sulfur content of the May deliveries was 1.64 % sulfur. The results of the sulfur dioxide collection efficiency is reflected in the table below. These tests certainly justify the 90% removal efficiency. The continuous efficiency is of course unknown as the pH of the scrubbing media varies.

Scrubber Efficiencies

test date	run	start time	end time	SO_2 ppmv	flow dscfm	bbl oil	removal eff
10-Jun-04	A1	12:00	13:00	4.01	92695.6	110	0.994
10-Jun-04	A2	14:41	15:41	4.44	100367.6	114	0.994
10-Jun-04	A3	17:34	18:34	4.1	90347	105	0.994
9-Jun-04	B1	12:29	13:20	0.78	98106.4	41	0.997
9-Jun-04	B2	15:00	15:56	0.43	89716.4	31	0.998
9-Jun-04	B3	17:51	18:58	0.64	90837.6	22	0.995

14. No new federal regulations have been promulgated implementing more stringent controls for sulfur dioxide. The new regulations only applied to pulping emissions of volatile organic HAPs as measured by methanol. The years 2000, 2001 were used for baseline for SO_2 emissions because they provided a more conservative analysis. By using 2003, 2004 as the baseline years the increase drops from 10.93 to 2.05 TPY.

15. The potential capacity of a complex facility can not simply be arrived at by some sort of engineering calculation. It is more than just the operating capacity of the bottleneck operations, and greatly depends on the amount of maintenance and operating expense the facility can incur, which depends on market conditions. Examining historical record prior to the installation of No.6 digester, the most pulp produced in any year was 150,000 in 1996. This was the baseline year. However, the mill makes many grades of pulp only to order. Almost no pulp is made on speculation. The annual production experience is mostly dependant on market conditions, not potential capacity. The most tons produced in any month was in 1988 when 16,733 tons were produced giving an annual capacity of 167,733 tons per year. The most tons produced in any day was 549, which at 350

operating days gives and annual capacity to 192,150 tons per year. Prior to No. 6 digester the most tons in any week was in 1992 when the mill produced 3432 tons calculating to 171,600 tons per year. It should be clear that the capacity prior to No. 6 digester installation exceeded the annual production in this request.

16. Our response to question 10 demonstrates that every parameter that would affect modeled ambient concentrations would produce lower impacts than those shown in the modeling previously submitted. That modeling included the Smurfit-Stone Fernandina Beach mill emissions, and other nearby major sources. The interaction of all nearby major sources with the Rayonier's plume is analyzed in this modeling. Since the pulp mill in St Marys subsequently closed, but was included in this modeling, predicted impact will be even less. There is no need to do further modeling.

I hope this answers all you questions and you can proceed to issue this construction permit. If you have questions regarding this response please try to contact David Tudor at (904)277-1452 or Dick Hopper at (904)277-1480.

Yours very truly,

F. J. Perrett
General Manager

cc: Christopher Kirts - FDEP
Trina Vielhauer - DARM

ATTACHMENT 3

	Date	O2 %	NOX ppmV,dry	SO2 ppmV,dry	CO ppmV,dry	PM g/dscm 8%O2	PM lb/hr	Gas Flow dscf/m
A Scrubber	6/10/2004	11.4	79.7	3.7	225.7	0.121	31.0	92,696
	6/10/2004	12.3	86.3	4.1	175.7	0.164	41.2	100,363
	6/10/2004	11.8	79.4	3.7	248.6	0.250	57.1	90,347
	Average	11.8	81.8	3.8	216.7	0.179	43.1	94,468
B Scrubber	6/9/2004	11.5	53.8	0.8	133.3	0.079	20.9	98,106
	6/9/2004	12.4	62.1	0.3	115.8	0.215	47.6	89,716
	6/9/2004	12.4	63.7	0.4	150.6	0.154	34.4	90,838
	Average	12.1	59.9	0.5	133.2	0.149	34.3	92,887

A Scrubber			
81.8	ppmV NOX 2004	385	dscf/mole
94,468	dscf/m flue gas	46	lb NO2/mole NO2
7.73	dscf/min NOX	55.40	lb NOX/hr
		224	T NOX/yr
3		1,330	lb NOX/day

B Scrubber			
59.9	ppmV NOX 2004	385	dscf/mole
92,887	dscf/m flue gas	46	lb NO2/mole NO2
5.56	dscf/min NOX	40	lb NOX/hr
		163	T NOX/yr
		957	lb NOX/day

AOR Total	387	T NOX/yr

Attach3 Quest #7 NOX Stack Tests Power Boilers 2004

"A" SCRUBBER STACK TEST ANALYSIS for 10-Jun-04

Steam Output from No. 2 Power Boiler

Run Number	Steam Production [1000 lb./hr. of 1000 BTU/lb. Steam] Power Boiler No. 1	Power Boiler No. 2	Total
A-1	90	105	195
A-2	100	97	198
A-3	93	105	197
Average	95	101	196
Capacity	120	120	240
A Scrubber Actual Total % of Capacity =			82%

Oil Input to Boiler

Run Number	Power Boiler No. 1 Gal. Oil	Test Min.	BTU/gal	MMBTU/hr from Oil	Power Boiler No. 2 Gal. Oil	Test Min.	BTU/gal	MMBTU/hr from Oil	Test Result per Stack test
A-1	718	61	155,833	110	0	61	155833	0.0	31.0
A-2	756	62	155833	114	0	62	155833	0.0	41.2
A-3	676	60	155,833	105	0	60	155,833	0.0	57.1
Average	737	62	155,833	112	0	62	155,833	0	43.1
Permit Maximum	[mmBTU/hr]			185				184	

Allowable Particulate Emissions Calculation

Test total BTU Input from Oil for B Scrubber	112	MM BTU/hr.
Maximum Steam Output from 1 & 2 PB	240,000	lb./hr. [1000 BTU Steam]
Test Operating Rate	82%	
Test Steam Output Rate	196,381	lb./hr.
Boiler Efficiency on Oil	65%	
Test Steam from Oil	72,831	lb./hr. [total input from oil x Eff. on oil]
Test Steam from Bark [by difference]	123,550	lb./hr.
Boiler Efficiency on Bark	55%	Permit Max.
Test Heat Input from Bark	225	mmBTU/h 218
Emissions Limit Factor for Bark	0.23	lb. PM/MMBTU
Emissions Limit Factor for Oil	0.086	lb. PM/MMBTU
Allowable Emissions from Bark	51.7	lb. PM/hr [emissions factor x heat input]
Allowable Emissions from Oil	9.6	lb. PM/hr [emissions factor x heat input]
Total Allowable Emissions for A Scrubber	61.3	lb. PM/hr. (Including Oil Emissions)
Total Allowable Emissions for A Scrubber	61.3	lb. PM/hr. (By Oil Emissions Factor or Permit)
Actual emissions for A Scrubber 10-Jun-04 Test	**43.1**	lb. PM/hr.

Maximum By Permit	
50.6	#2 Bark Only
15.2	#2 Oil Only
16.0	#1 Oil Only

"B" SCRUBBER STACK TEST ANALYSIS for 06/09/04

Steam Output from No. 3 Power Boiler

Run Number	Steam Production [1000 lb./hr. of 1000 BTU/lb. Steam] Power Boiler No. 3
B1	122
B2	135
B3	116
Average	125
Capacity	135

B Scrubber Actual Total % of Capacity = 92%

Oil Input to Boiler

Run Number	Power Boiler No. 3 Gal. Oil	Test Min.	BTU/gal	MMBTU/hr from Oil	Test Result per Stack test
B1	231	52	155,833	41	20.9
B2	185	56	155,833	31	47.6
B3	143	61	155,833	22	34.4
Average	186	56	155,833	31	34.3

Permit Maximum [mmBtu/hr] 207

Allowable Particulate Emissions Calculation

Test total BTU Input from Oil for B Scrubber		31.4	MM BTU/hr.			
Maximum Steam Output from 3 PB		135,000	lb./hr. [1000 BTU Steam]			
Test Operating Rate		92%				
Test Steam Output Rate		124,648	lb./hr.			
Boiler Efficiency on Oil		65%				
Test Steam from Oil		20,411	lb./hr. [total input from oil x Eff. on oil]			
Test Steam from Bark [by difference]		104,237	lb./hr.			
Boiler Efficiency on Bark		55%	Permit Max.			
Test Heat Input from Bark		190	mmBTU/hı	245		
Emissions Limit Factor for Bark		0.207	lb. PM/MMBTU		Permit	
Emissions Limit Factor for Oil		0.086	lb. PM/MMBTU		Maximum	
Allowable Emissions from Bark		39.2	lb. PM/hr [emissions factor x heat input]		50.6	#3Bark Only
Allowable Emissions from Oil		2.7	lb. PM/hr [emissions factor x heat input]		16.7	#3 Oil Only
Total Allowable Emissions for B Scrubber		41.9	lb. PM/hr. (Including Oil Emissions)			
Total Allowable Emissions for B Scrubber		41.9	lb. PM/hr. (By Oil Emissions Factor or Permit)			
Actual emissions for B Scrubber	Test	34.3	lb. PM/hr.			

ATTACHMENT 2

Recovery Boiler SSL Fired						
Parameter		2004	2003	2002	2001	2000
Net Production ADMT/yr		145883	144975	145895	146247	151515
Production ADUBT/yr		223,276	223,692	217,383	223,669	214,703
Operating Hours / year		8,072	7,871	7,970	8,177	8,423
CO	Ton/yr	411	271	430	409	429
NOx	Ton/yr	2,070	916	904	925	1,032
PM	Ton/yr	84	48	77	212	194
PM10	Ton/yr	75	43	69	190	169

CO 2004	No factor for spent sulfite liquor (SSL).		
ppm (CO)		195	"Recovery Boiler Hourly" report for 2004.
dscfm (average)		121,096	From this year's Stack Test Data.
dscf/mol @ 20C		385	
Tons (CO)/yr [Total]		416	
Tons (CO)/yr [Oil]		5	
Tons (CO)/yr [SSL]		411	
lbs (CO)/day [SSL]		2,442	

Example Calculation:

Tons (CO)/yr [Total] = [CO Conc. (ppm)] x [MW(CO)] / [2000 lbs/ton] x [dscf/min] / [dscf/mol] x 60 min/hr x [Hrs of Oper (hrs/yr)]

CO 2003	No factor for spent sulfite liquor (SSL).		
ppm (CO)		137	"Recovery Boiler Hourly" report for 2003.
dscfm (average)		117,393	From this year's Stack Test Data.
dscf/mol @ 20C		385	
Tons (CO)/yr [Total]		276	
Tons (CO)/yr [Oil]		5	
Tons (CO)/yr [SSL]		271	
lbs (CO)/day [SSL]		1,653	

Example Calculation:

Tons (CO)/yr [Total] = [CO Conc. (ppm)] x [MW(CO)] / [2000 lbs/ton] x [dscf/min] / [dscf/mol] x 60 min/hr x [Hrs of Oper (hrs/yr)]

Attach2 Quest #6 calcs 2005-10

CO 2002	No factor for spent sulfite liquor (SSL).	
ppm (CO)	187	"Recovery Boiler Hourly" report for 1999 - 307 entries - meter not operable in 2001 or 2002
dscfm (average)	134,513	From this year's Stack Test Data.
dscf/mol @ 20C	385	
Tons (CO)/yr [Total]	437	
Tons (CO)/yr [Oil]	8	
Tons (CO)/yr [SSL]	430	
lbs (CO)/day [SSL]	2,588	
Example Calculation:		
Tons (CO)/yr [Total]	= [CO Conc. (ppm)] x [MW(CO)] / [2000 lbs/ton] x [dscf/min] / [dscf/mol] x 60 min/hr x [Hrs of Oper (hrs/yr)]	

CO 2001	No factor for spent sulfite liquor (SSL).	
ppm (CO)	187	"Recovery Boiler Hourly" report for 1999 - 307 entries - meter not operable in 2001
dscfm (average)	125,172	From this year's Stack Test Data.
dscf/mol @ 20C	385	
Tons (CO)/yr [Total]	418	
Tons (CO)/yr [Oil]	8	
Tons (CO)/yr [SSL]	409	
lbs (CO)/day [SSL]	2,403	
Example Calculation:		
Tons (CO)/yr [Total]	= [CO Conc. (ppm)] x [MW(CO)] / [2000 lbs/ton] x [dscf/min] / [dscf/mol] x 60 min/hr x [Hrs of Oper (hrs/yr)]	

CO 2000	No factor for spent sulfite liquor (SSL).	
ppm (CO)	187	"Recovery Boiler Hourly" report for 1999 307 entries - meter not operable in 2000
dscfm (average)	127,672	From this year's Stack Test Data.
dscf/mol @ 20C	385	
Tons (CO)/yr [Total]	439	
Tons (CO)/yr [Oil]	9	
Tons (CO)/yr [SSL]	429	
lbs (CO)/day [SSL]	2,447	
Example Calculation:		
Tons (CO)/yr [Total]	= [CO Conc. (ppm)] x [MW(CO)] / [2000 lbs/ton] x [dscf/min] / [dscf/mol] x 60 min/hr x [Hrs of Oper (hrs/yr)]	

Attach2 Quest #6 calcs 2005-10

NOX 2004
Stack Tests 2004

605	ppmV NOX 2004	385	dscf/mole	
121,096	dscf/m flue gas	46	lb NO2/mole NO2	
73	dscf/min NOX	525	lb NOX/hr	minus recovery oil NOX
		2,120	T NOX/yr	2,070
		12,608	lb NOX/day	12,312

NOx 2003

lbs (NOx)/hr	245	Average from Stack Test Data from 1995
Tons (NOx)/yr	916	
lbs (NOx)/day	5,588	

Example Calculation:
Tons (NOx)/yr = [[lbs (NOx)/hr] x [Hours of Oper (hrs/yr)] / [2000 lbs/ton]] - [Tons Nox/yr from Oil]
lbs (NOx)/day = [Tons (NOx)/yr] / [Days of Oper (days/yr)] x [2000 lbs/ton]

NOx 2002

lbs (NOx)/hr	245	Average from Stack Test Data from 1995
Tons (NOx)/yr	904	
lbs (NOx)/day	5,443	

Example Calculation:
Tons (NOx)/yr = [[lbs (NOx)/hr] x [Hours of Oper (hrs/yr)] / [2000 lbs/ton]] - [Tons Nox/yr from Oil]
lbs (NOx)/day = [Tons (NOx)/yr] / [Days of Oper (days/yr)] x [2000 lbs/ton]

NOx 2001

lbs (NOx)/hr	245	Average from Stack Test Data from 1995
Tons (NOx)/yr	925	
lbs (NOx)/day	5,429	

Example Calculation:
Tons (NOx)/yr = [[lbs (NOx)/hr] x [Hours of Oper (hrs/yr)] / [2000 lbs/ton]] - [Tons Nox/yr from Oil]
lbs (NOx)/day = [Tons (NOx)/yr] / [Days of Oper (days/yr)] x [2000 lbs/ton]

NOx 2000

lbs (NOx)/hr	245	Average from Stack Test Data from 1995
Tons (NOx)/yr	1,032	
lbs (NOx)/day	5,880	

Example Calculation:
Tons (NOx)/yr = [lbs (NOx)/hr] x [Hours of Oper (hrs/yr)] / [2000 lbs/ton]
lbs (NOx)/day = [Tons (NOx)/yr] / [Days of Oper (days/yr)] x [2000 lbs/ton]

PM 2004

lbs (PM)/hr		24	From Stack Test Data. (No oil burning during these tests.)
Tons (PM)/yr	includes test rate ratio	84	
lbs (PM)/day		500	

Example Calculation:
Tons (PM)/yr = [lbs (PM)/hr] x [Hours of Oper (hrs/yr)] x [test rate ratio to average rate] / [2000 lbs/ton]
lbs (PM)/day = [Tons (PM)/yr] / [Days of Oper (days/yr)] x [2000 lbs/ton]

PM 2003

lbs (PM)/hr		13	From Stack Test Data. (No oil burning during these tests.)
Tons (PM)/yr	includes test rate ratio	48	
lbs (PM)/day		293	

Example Calculation:
Tons (PM)/yr = [lbs (PM)/hr] x [Hours of Oper (hrs/yr)] x [test rate ratio to average rate] / [2000 lbs/ton]
lbs (PM)/day = [Tons (PM)/yr] / [Days of Oper (days/yr)] x [2000 lbs/ton]

PM 2002

lbs (PM)/hr		22	From Stack Test Data. (No oil burning during these tests.)
Tons (PM)/yr	includes test rate ratio	77	
lbs (PM)/day		465	

Example Calculation:
Tons (PM)/yr = [lbs (PM)/hr] x [Hours of Oper (hrs/yr)] x [test rate ratio to average rate] / [2000 lbs/ton]
lbs (PM)/day = [Tons (PM)/yr] / [Days of Oper (days/yr)] x [2000 lbs/ton]

PM 2001

lbs (PM)/hr		52	From Stack Test Data. (No oil burning during these tests.)
Tons (PM)/yr		212	
lbs (PM)/day		1,246	

Example Calculation:
Tons (PM)/yr = [lbs (PM)/hr] x [Hours of Oper (hrs/yr)] / [2000 lbs/ton]
lbs (PM)/day = [Tons (PM)/yr] / [Days of Oper (days/yr)] x [2000 lbs/ton]

PM 2000

lbs (PM)/hr		46	From Stack Test Data. (No oil burning during these tests.)
Tons (PM)/yr		194	
lbs (PM)/day		1,106	

Example Calculation:
Tons (PM)/yr = [lbs (PM)/hr] x [Hours of Oper (hrs/yr)] / [2000 lbs/ton]
lbs (PM)/day = [Tons (PM)/yr] / [Days of Oper (days/yr)] x [2000 lbs/ton]

Row #

ATTACHMENT 1

2 **Annual Production Change to the Proposed New Maximum Production**

Row #	Year	Net ADMT/yr	Change	% Change	Change Ratio
4	Year	Net ADMT/yr	Change	% Change	Change Ratio
5	1996	149,957	25,043	14.31%	1.167
6	1997	149,426	25,574	14.61%	1.171
7	1998	132,016	42,984	24.56%	1 326
8	1999	119,689	55,311	31.61%	1 462
9	2000	151,515	23,485	13.42%	1 155
10	2001	146,247	28,753	16.43%	1 197
11	2002	145,895	29,105	16.63%	1.199
12	2003	144,976	30,024	17.16%	1 207
13	2004	145,883	29,117	16.64%	1 200

15 New Production: **175,000**

18	**Table 13. Pulping, Bleaching, Evaporation, Wastewater Systems SO_2 and VOC Emissions in TPY from 16.70% Production Increase**						
19	Year	VOC		SO_2		CO	
20	**Pulping Systems (VGS)**						
21	2000			79		0	
22	2001			51.84		0	
23	2002			21.36		0	
24	2003	26 72		13.34		0	
25	2004	46 52		11.25		0	
26	Baseline	36 62		65.42		NA	
27	Increase 8%		2 93				0
28	Increase 16.70%		6.116		10 925		
29	**Bleaching Systems**						
30	2003	178.17		0			
31	2004	177.84		0			
32	Baseline	178		NA			
33	HCE blow heat recovey	-71.2					
34	Increase 8% no heat recovery project		14.24				
35	Increase 16.70% and recovery project		-41 47				25.12
36	**Evaporators**						
37	2003	50 72		0		0	
38	2004	56 72		0		0	
39	Baseline	53.72		NA		NA	
40	Increase 8%		4.297		0		0
41	Increase 16.70%		8.971				
42	**Wastewater Treatment System**						
43	2003	76 89		0		0	
44	2004	55 64		0		0	
45	Baseline	66.26		NA		NA	
46	Increase 8%		5 301		0		0
47	Increase 16.70%		11.065				
48	Grand Total at 8% increase and no heat recovery project		26 77				
49	Grand Total at 16 70% increase and heat recovery project		-15.318		10 925		25 12
50 51	Significance Level		40		40		100

Row #

ATTACHMENT 1

Row #						
52						
53	**Pulping Systems (VGS)**					
54						
55	**Table 13**	**Pulping Systems**				
56	**Year**	**Production ADMT/yr**	**VOC Ton/yr**	**SO2 Ton/yr**		
57	2000	151,515		79.00		
58	2001	146,247		51.84		
59	2002	145,895		21.36		
60	2003	144,976	26.72	13.34		
61	2004	145,883	46.52	11.25		
62	Baseline		36.62	65.42		
63	Increase 8%		2.93			
64	Increase 16.70%		6.12	10.93		
65						
66	2004 Pulping System [VGS]	Uncontrolled MeOH:	1.52	lb MeOH/ADMT	Pulping MeOH/VOC ratio:	0.975
67		Production	Ton MeOH/yr	Ton VOC/yr	% Change from 1996	
68	1996	149,957	114	117	0.0%	
69	2003	144,976	110	113	-3.3%	
70	2004	145,883	111	114	-2.7%	
71	Present PSD Limit	153,205	116	119	2.2%	
72	Proposed PSD Limit	175,000	133	136	16.7%	
73						

Row #												
74	**Copy of AOR Calculations for Pulping System VOC**											
75	Methanol & VOC 2004				Before Control							
76		VGS Stack Tests 1991 - 2001:			25 39	lb MeOH/hr	26	tests	G:RWH/MACT Methanol/Methanol Data Review SortII 9904 xls			
77					1,10	lb MeOH/ODUBT	26	tests	24	ODUBT/hr		
78		VGS Stack Tests 10/2003 Worst Case Scenario			21 80	lb MeOH/hr	3	tests	568	ODUBT/day		
79					0 92	lb MeOH/ODUBT	3	tests	572	ADUBMT/day		
80				Weighted Average	25 01	lb MeOH/hr	29	tests				
81					1 08	lb MeOH/ODUBT	29	tests	567	ODUBT/day		
82				ODUBT/yr:	200,948				VGS Stack Tests 10/2003			
83				ADMT/yr:	145,883							
84	Ton MeOH/yr	45 4		Method	1							
85	lb/MeOH/day	256.4				VOC per	After Control	0 46	lb/ODUBT	VGS Stack Tests 2004		11 6
86						FDEP	After Control	45 37	T MeOH/yr			lb/hr
87	Total HAPS				VOC [EPA 500 Series]	62-204 200	Total Year	45 37	T MeOH/yr			278 4
88		Methanol			No	Yes			MeOH removal eff.	58%		
89		45 37	T MeOH/yr									
90						Yes						
91		Acetaldehyde			No							
92		0 0048	lb/ADUBT Pulp									
93		223275 8763	ADUBT/yr Pulp									
94		0 535862103	Ton /yr									
95		Benzene			Yes	Yes						
96		0 000015	lb/ADUBT Pulp									
97		223275 8763	ADUBT/yr Pulp									
98		0 001674569	Ton /yr									
99		Acrolein			No	Yes						
100		0 000105	lb/ADUBT Pulp									
101		223275 8763	ADUBT/yr Pulp									
102		0 011721984	Ton /yr									
103		Arsenic			No	No						
104		0	lb/ton RLS									
105		241500	RLS/yr									
106		0	Ton /yr									
107		Chloromethane			Yes	Yes						
108		0	lb/ton RLS									
109		241500	RLS/yr									
110		0	Ton /yr									
111		Barium Compounds			No	No						
112		0	lb/ton RLS									
113		241500	RLS/yr									
114		0	Ton /yr									
115		Carbon Tetrachloride			Yes	Yes						
116		0 00115	lb/ADUBT Pulp									

ATTACHMENT 1

Row #												
117		223275 8763	ADUBT/yr Pulp									
118		0 128383629	Ton /yr									
119		Carbon Disulfide			Yes	Yes						
120		0	lb/ton RLS									
121		241500	RLS/yr									
122		0	Ton /yr									
123		Chromium Comp			No	No						
124		0	lb/ton RLS									
125		241500	RLS/yr									
126		0	Ton /yr									
127		Cobalt Comp.			No	No						
128		0	lb/ton RLS									
129		241500	RLS/yr									
130		0	Ton /yr									
131		Copper Comp.			No	No						
132		0	lb/ton RLS									
133		241500	RLS/yr									
134		0	Ton /yr									
135		Dichloromethane			No	Yes						
136		0 00045	lb/ADUBT Pulp									
137		223275 8763	ADUBT/yr Pulp									
138		0 050237072	Ton /yr									
139		n-Hexane			No	Yes						
140		0 0001	lb/ADUBT Pulp									
141		223275 8763	ADUBT/yr Pulp									
142		0.011163794	Ton /yr									
143		Methyl Isobutyl Ketone			No	Yes						
144		0 000105	lb/ADUBT Pulp									
145		223275.8763	ADUBT/yr Pulp									
146		0.011721984	Ton /yr									
147		Lead Compounds			No	No						
148		0	lb/ton RLS									
149		241500	RLS/yr									
150		0	Ton /yr									
151		Manganese Comp.			No	No						
152		0	lb/ton RLS									
153		241500	RLS/yr									
154		0	Ton /yr									
155		Mercury Comp.			No	No						
156		0	lb/ton RLS									
157		241500	RLS/yr									
158		0	Ton /yr									
159		Napthalene			Yes	Yes						
160		0	lb/ton RLS									
161		241500	RLS/yr									
162		0	Ton /yr									
163		Nickel Comp.			No	No						
164		0	lb/ton RLS									
165		241500	RLS/yr									
166		0 067	Ton /yr									
167		Tetrachloroethylene			No	Yes						
168		0.000315	lb/ADUBT Pulp									
169		223275 8763	ADUBT/yr Pulp									
170		0.035165951	Ton /yr									
171		Styrene			Yes	Yes						
172		0.0000235	lb/ADUBT Pulp									
173		223275 8763	ADUBT/yr Pulp									
174		0 002623492	Ton /yr									
175		1,2,4 Trichlorobenzene			No	Yes						
176		0.00011	lb/ADUBT Pulp									
177		223275 8763	ADUBT/yr Pulp									
178		0.012280173	Ton /yr									
179		Toluene			Yes	Yes						
180		0.00066	lb/ADUBT Pulp									
181		223275 8763	ADUBT/yr Pulp									
182		0 073681039	Ton /yr									

ATTACHMENT 1

Row #												
183		1,1,1-Trichloroethane			Yes	No						
184		0 0016	lb/ADUBT Pulp									
185		223275 8763	ADUBT/yr Pulp									
186		0 178620701	Ton /yr									
187		1,1,2-Trichloroethane			Yes	No						
188		0 000225	lb/ADUBT Pulp									
189		223275 8763	ADUBT/yr Pulp									
190		0.025118536	Ton /yr									
191		Xylenes			Yes	Yes						
192		0 00072	lb/ADUBT Pulp									
193		223275 8763	ADUBT/yr Pulp									
194		0.080379315	Ton /yr									
195		Zinc Comp			No	No						
196		0	lb/ton RLS									
197		241500	RLS/yr									
198		0	Ton /yr									
199		Trichlorethylene			No	Yes						
200		0 000225	lb/ADUBT Pulp									
201		223275 8763	ADUBT/yr Pulp									
202		0 025118536	Ton /yr									
203		Formaldehyde			No	Yes						
204		0 00004	lb CHOH/hr	Average of two 1991 test by ESE								
205		8495	hr/yr									
206		0.0003398	Ton /yr									
207		Methyl Ethyl Ketone			No	Yes						
208		0 00893	lb MEK/hr	Average of four test sets from 1991-1995								
209		8495	hr/yr			No --->	Acetone	2 55	Ton/yr			
210		0 07586035	Ton /yr									
211		Chloroform			Yes	Yes						
212		0 0109	lb CHCl3/hr	1992 ESS test								
213		8495	hr/yr		1993 testing by Max F.			With Methanol				
214		0 0925955	Ton /yr		Total VOC	1.14880929	Ton VOC/yr	46.52	Method	3		
215						6 612765447	lb VOC/day	267.77				
216		Total HAPS										
217		46.79	Ton total HAPS/yr	Method	2		VGS MeOH/VOC =	0 975				
218		264.38	lb total HAPS/day									
219		% Methanol=	96 97%									
220												
221												
222					Bleaching Systems							
223												

Row #				
224	Table 13	Bleaching Systems		
225	Year	VOC Ton/yr		CO Ton/yr
226	2003	178.17		
227	2004	177.84		
228	Baseline	178		
229	HCE blow heat recovey	-71.2		
230	Increase 8% no heat recovery project		14 24	
231	Increase 16.70% and recovery project		-41.47	25.12
232				

ATTACHMENT 1

Row #							
233	**Copy of AOR Calculations for VOC for Bleaching Systems**						
234	Methanol & VOC 2004	Miscellaneous Sources					
235	0 21	lb MeOH/ODUBT	Methanol Data Review SortII 9904				
236	200,948	ODUBT/yr					
237	21	Ton MeOH/yr					
238	Methanol	Hot Caustic Extraction Stage					Y
239	1.56	lb MeOH/ODUBT	Metco Tests March 2000				
240		Includes all HCE stage vents in the bleach plant					
241	200,948	ODUBT/yr					With Methanol
242	157	Ton MeOH/yr		Total VOC	178	Ton VOC/yr	178
243					1,024	lb VOC/day	1,024
244	Methanol	Total				Method	2
245	178	Total Ton MeOH/yr	Method	2			
246	1,024	lb MeOH/yr					
247							
248	Total HAPS						
249	178	Total HAPS/yr	Method	2			
250	1,024	lb HAPS/day					
251							

Row #										
252	2004 Bleaching Systems Uncontrolled MeOH:	2.44	lb MeOH/ADMT	Pulping MeOH/VOC ratio:	1.000		CO/ODUBMT for bleaching:	1.606	CO/ADMT:	2.21
253		Production	Ton MeOH/yr	Ton VOC/yr	% Change from 1996	Ton/yr VOC change from 1996 without HCE heat recovery	CO Ton/yr	% Change from 1996	Ton/yr VOC change from 1996	Ton/yr VOC change from 2004
254	1996	149,957	183	183	0.0%	0	120	0.0%	0	3
255	2003	144,976	177	177	-3.3%	-6	116	-3.3%	-4	-1
256	2004	145,883	178	178	-2.7%	-5	117	-2.7%	-3	0
257	Present PSD Limit	153,205	187	187	2.2%	4	123	2.2%	3	6
258	HCE Heat Rec. PSD Limit	162,000	197	197	8.0%	15	130	8.0%	10	13
259	Proposed PSD Limit	175,000	213	213	16.7%	31	141	16.7%	20	23
260										
261	Evaporation and Chemical Recovery Process Operations									
262										

Row #					
263	Sulfur Dioxide	Recovery Boiler			
264	2004 lb SSLS Captured/ADMT =		3394	Sulfur in SSLS =	6%
265		Production	Potential SO2 from Recovery Boiler Ton SO2/yr	Change in potential SO2 from Recovery Boiler Ton SO2/yr compared to 1996	Change in potential SO2 from Recovery Boiler Ton SO2/yr compared to 2004
266	1996	149,957	30,537	0	830
267	2003	144,976	29,523	-1,014	-185
268	2004	145,883	29,708	-830	0
269	Present PSD Limit	153,205	31,199	661	1,491
270	HCE Heat Rec. PSD Limit	162,000	32,990	2,452	3,282
271	Proposed PSD Limit	175,000	35,637	5,100	5,929
272					

Row #				
273	2004 AOR VOC	Recovery Boiler		
274			347.5	mill op. days/yr
275			0 95	MeOH/VOC ratio
276	VOC from Methanol			
277		0 33	lb/ODUBT 2004 tests	
278		145,883	ADMT bleached pulp produced/yr.	
279		200,948	ODT unbleached pulp produced.	
280		35	Ton VOC/yr.	
281		201	lb. VOC/day	
282				
283				

Row #										
284	Methanol			Uncontrolled						
285		Recovery Boiler Stack Tests 1991 - 2001:			49 928	lb MeOH/hr	13	tests	G:RWH/MACT Methanol/Methanol Data Review SortII 9904.xls.	
286					2 088	lb MeOH/ODUBT	13	tests	24.82	ODUBT/hr
287		STACS testing [Cellunier - worst case grade] 2003			119.1	lb MeOH/hr	3	tests	595 68	ODUBT/day
288					5.041	lb MeOH/ODUBT	3	tests	600 4415011	ADUBMT/day
289		STACS testing 2004			49 9	lb MeOH/hr	1			
290					1.96	lb MeOH/ODUBT	1			

ATTACHMENT 1

Row #												
291				Weighted Average	62.07435294	lb MeOH/hr	17	tests	G RWH/MACT Methanol/Methanol Data from 9/01 Tests.xls			
292					2 542764706	lb MeOH/ODUBT	17	tests				
293			2004	ODUBT/yr.	200948 2887							
294						Before Controls	0	Ton MeOH/yr	E991*E992/2000*(C15-C17)/C15			
295	Ton MeOH/yr	34		Method	1				recover hours before control/total recover hrs.			
296	lb/MeOH/day	204				After Controls	0 33	lb MeOH/ODUBT	Performance Test 2004		8 1666667	lb/hr
297							34 25373226	Ton MeOH/yr			196	
298	Total HAPS					Total for Year	34 25373226	Ton MeOH/yr			0 3266667	
299		Methanol										
300		34	T MeOH/yr									
301												
302		Acetaldehyde										
303		0 035	lb/ton RLS									
304		241500	RLS/yr									
305		4 22625	Ton /yr									
306		Benzene										
307		0 000052	lb/ton RLS									
308		241500	RLS/yr									
309		0 006279	Ton /yr									
310		Acrolein										
311		0 00135	lb/ton RLS									
312		241500	RLS/yr									
313		0 1630125	Ton /yr									
314		Arsenic										
315		0 0000034	lb/ton RLS									
316		241500	RLS/yr									
317		0.00041055	Ton /yr									
318		Chloromethane										
319		0 0047	lb/ton RLS									
320		241500	RLS/yr									
321		0 567525	Ton /yr									
322		Barium Compounds										
323		0 0000057	lb/ton RLS									
324		241500	RLS/yr									
325		0 000688275	Ton /yr									
326		Carbon Tetrachloride										
327		0 0015	lb/ton RLS									
328		241500	RLS/yr									
329		0 181125	Ton /yr									
330		Carbon Disulfide										
331		0.000073	lb/ton RLS									
332		241500	RLS/yr									
333		0 00881475	Ton /yr									
334		Chromium Comp.										
335		0 0000094	lb/ton RLS									
336		241500	RLS/yr									
337		0.00113505	Ton /yr									
338		Cobalt Comp										
339		0 000084	lb/ton RLS									
340		241500	RLS/yr									
341		0.0095	Ton /yr									
342		Copper Comp										
343		0 00016	lb/ton RLS									
344		241500	RLS/yr									
345		0 01932	Ton /yr									
346		Dichloromethane										
347		0 000061	lb/ton RLS									
348		241500	RLS/yr									
349		0 00736575	Ton /yr									
350		n-Hexane										
351		0	lb/ton RLS									
352		241500	RLS/yr									
353		0	Ton /yr									
354		Methyl isobutyl Ketone										
355		0 0013	lb/ton RLS									
356		241500	RLS/yr									
357		0 156975	Ton /yr									
358		Lead Compounds										
359		0 000017	lb/ton RLS									
360		241500	RLS/yr									
361		0.00205275	Ton /yr									
362		Manganese Comp										
363		0 0001	lb/ton RLS									

ATTACHMENT 1

Row #								
364		241500	RLS/yr					
365		0.012075	Ton /yr					
366		Mercury Comp						
367		0	lb/ton RLS					
368		241500	RLS/yr					
369		0	Ton /yr					
370		Napthalene						
371		0.0029	lb/ton RLS					
372		241500	RLS/yr					
373		0.350175	Ton /yr					
374		Nickel Comp						
375		0.000554865	lb/ton RLS					
376		241500	RLS/yr					
377		0.067	Ton /yr					
378		Phenol						
379		0.001	lb/ton RLS					
380		241500	RLS/yr					
381		0.12075	Ton /yr					
382		Styrene						
383		0.0018	lb/ton RLS					
384		241500	RLS/yr					
385		0.21735	Ton /yr					
386		1,2,4 Trichlorobenzene						
387		0.0049	lb/ton RLS					
388		241500	RLS/yr					
389		0.591675	Ton /yr					
390		Toluene						
391		0.0015	lb/ton RLS					
392		241500	RLS/yr					
393		0.181125	Ton /yr					
394		1,1,1-Trichloroethane						
395		0.0000042	lb/ton RLS					
396		241500	RLS/yr					
397		0.00050715	Ton /yr					
398		1,1,2-Trichloroethane						
399		0.0034	lb/ton RLS					
400		241500	RLS/yr					
401		0.41055	Ton /yr					
402		Xylene						
403		0.003	lb/ton RLS					
404		241500	RLS/yr					
405		0.36225	Ton /yr					
406		Zinc Comp						
407		0.012	lb/ton RLS					
408		241500	RLS/yr					
409		1.449	Ton /yr					
410		Trichlorethylene						
411		0.0032	lb/ton RLS					
412		241500	RLS/yr					
413		0.3864	Ton /yr					
414		Formaldehyde						
415		0.000275	lb CHOH/hr	Average of two 1991 test by ESE				
416		8071.97	hr/yr					
417		0.002219792	Ton /yr					
418		Methyl Ethyl Ketone						
419		0.072	lb CHOH/hr	Average of four test sets from 1991-1995				
420		8071.97	hr/yr					
421		0.58118184	Ton /yr					
422		Chloroform						
423		0.00069	lb CHCl3/hr	1993 ESS test				
424		8071.97	hr/yr		1993 testing by Max F.			With Methanol
425		0.005569659	Ton /yr		Total VOC	8.12	Ton VOC/yr	42.37
426		Total HAPS						
427		44.34201433	Ton total HAPS/yr	Method				
428		263.6799552	lb total HAPS/day		2		VGS MeOH/VOC =	0.81
429		% Methanol=	0.772489315					
430								
431	2004 AOR							
432	EU ID 018	Miscellaneous Utilities Area Emissions						
433		No data and no significant emissions expected if not listed.						
434		Methanol						
435		0.2172	lb MeOH/ODUBT	Methanol Data Review SortII 9904				
436		200946.2887	ODUBT/yr					

ATTACHMENT 1

Row #								
437		21 82298415	Ton MeOH/yr	Method	2			
438		129 7704574	lb MeOH/day					
439					Total VOC		21 82298415	Ton VOC/yr
440		Total HAPS					129 7704574	lb VOC/day
441		21 82298415	Ton Total HAPs/yr	Method	2			
442		129 7704574	lb Total HAPs/day					
443								
444	**2004 AOR Total VOC Evaps & Chem. Rec. Area Ton/yr**	**56.72**	**0.778**	**lb VOC/ADMT**				
445								

Row #	Total VOC Evaporation & Chemical Recovery	Production	Ton VOC/yr	Ton VOC/yr Change from 1996
447	1996	149,957	58	0
448	2003	144,976	56	-2
449	2004	145,883	57	-2
450	Present PSD Limit	153,205	60	1
451	HCE Heat Rec. PSD Limit	162,000	63	5
452	Proposed PSD Limit	175,000	68	10
453				
454				

Row #	Wastewater Treatment System		
456	Table 13	VOC Ton/yr	
457	2003	76.89	
458	2004	55 64	
459	Baseline	66.26	
460	Increase 8%		5 301
461	Increase 16.70%		11 065
462			

Row #							
463	**EU ID 010**	**Wastewater Collection and Treatment**					
464	**AOR 2004**	No data and no significant emissions expected if not listed.					
465		**Methanol**					
466		0 45	lb MeOH/ODUBT	Water 9 model* 2004	Method	2	
467		200,948	ODUBT/yr				
468		45	Ton MeOH/yr		*2003 Source Testing and Consulting Services		
469		248	lb MeOH/day		Used VGS hours 0 92 lb MeOH/ODUBT before control & 0 24 lb MeOH/ODUBT after control.		
470							
471		Benzene					
472		0	ND [10]	NCASI Bleach Sulfite Form R Handbook			
473		Chloroform			Method	2	
474		52	g/ADUBMT	BAT Chloroform summary			
475		0 89	% volatized NCASI Form R Handbook				
476		46 28	g/ADUBMT Volatized				
477		202554 5462	ADUBMT/yr				
478		10 33313977	Ton CHCl3/yr				
479		56 61994394	lb CHCl3/yr				
480							
481		Chlormethane					
482		0	ND	NCASI Bleach Sulfite Form R Handbook			
483		Cresol					
484		85 7	ppb WTS influent	NCASI Bleach Sulfite Form R Handbook			
485		0 0005	% volatized NCASI Form R Handbook				
486		36498 5265	Mlb/yr effluent				
487		0.007819809	Ton Cresol/yr				
488		Dichloromethane					
489		0	ND	NCASI Bleach Sulfite Form R Handbook			
490		Formaldehyde					
491		1.39	ppm in effluent to the ASB		2000 TRI calculations		
492		0 002	% volatized NCASI Form R Handbook				
493		36498 5265	Mlb/yr effluent				
494		0 050732952	Ton CHOH/yr				
495		N-Hexane					
496		0	No mill or pertinent NCASI data				
497		MEK					
498		0 042	ppm in effluent to the ASB				
499		0 048	% volatized NCASI Form R Handbook				
500		36498.5265	Mlb/yr effluent				

Row #

ATTACHMENT 1

Row #							
501		0 036790515	Ton MEK/yr				
502		MIBK					
503		0	ND[50]	NCASI Bleach Sulfite Form R Handbook			
504		Napthalene					
505		0	No mill or pertinent NCASI data				
506		Pentachlorophenol					
507		1.1	ppb in WTS discharg	Mill data collected in 2001			
508		0 1	ppb in WTS influent	Mill data collected in 2001.			
509		0	Ton/yr volatized				
510		Phenol					
511		0	No volatilization	NCASI Form R Handbod	Total VOC		
512		Styrene					
513		0	No mill or pertinent NCASI data				
514		Tetrachloroethylene					
515		0	ND[10]	NCASI Bleach Sulfite Form R Handbook			
516		Toluene					
517		0	ND[10]	NCASI Bleach Sulfite Form R Handbook			
518							
519		Total HAPS				VOC = HAP for these WWT compounds	
520		55 64	Ton HAPS/yr	0 81257842	Methanol		
521		320	lb/day	Method	2		
522							

Row #				
523		VOC lb/ADMT =	0.763	
524	**Total VOC Wastewater Treatment Systems**	**Production**	**Ton VOC/yr**	**Ton VOC/yr Change from 1996**
525	**1996**	**149,957**	**57**	**-1**
526	**2003**	**0**	**0**	**-58**
527	**2004**	**145,883**	**56**	**-3**
528	**Present PSD Limit**	**153,205**	**58**	**0**
529	**HCE Heat Rec. PSD Limit**	**162,000**	**62**	**3**
530	**Proposed PSD Limit**	**175,000**	**67**	**8**
531				

Row #												
532	**Power and Steam Production Operations**											
533												
534												
535	**2004 AOR Power Boiler Calculations**											
536	Parameter		Value	Reference Source								
537												
538								Operating Hours				
539	Operating Hours (hrs/yr)					op. days / yr	Quarter	CEM AP	CEM Rec	AP days	Rec days	
540	No. 1 Power Boiler		8084 39	Dynamic Reporter "Utilities Equipment Uptime"		336 8495833	1	1895	1660 1	78 95833333	69.170833	
541	No. 2 Power Boiler		8132 87	Dynamic Reporter "Utilities Equipment Uptime"		338 8695833	2	2184	2096 8	91	87 366667	
542	No. 3 Power Boiler		8180 7	Dynamic Reporter "Utilities Equipment Uptime"		340 8625	3	2208	2178 9	92	90 7875	
543	No. 8 Power Boiler on Oil		0	Dynamic Reporter "Utilities Equipment Uptime"		0	4	2208	2139 8	92	89 158333	
544	No. 8 Power Boiler on Diesel		0	Dynamic Reporter "Utilities Equipment Uptime"		0	Sum	8495	8075 6	353 9583333	336 48333	
545	Portable Generators on Diesel		0	Dates No 3 TG was down		0		353 9583333	336 4833333			
546	Recovery Boiler		8071 97	Quarterly CEM Reports - Same as Dynamic Rpt "Utilities Equipment Uptime		336 3320833	336 3320833	days	Mill Mach.Op. Days'		347.452	
547	VGS		8495	Quarterly CEM Reports		353 9583333	353 9583333	days	Mill Mach Op. Hours		8338 848	
548	Evap MeOH Condenser Uptime		8339 1	Semi-annual reports	Startup on April 15, 2002	347.4625	3969	4370.1				
549	VGS MeOH Condenser Uptime		8339 1	Semi-annual reports	Startup on April 15, 2002	347 4625	3969	4370 1				
550												
551	Fuel Oil - Total Metered (BBL/yr)		249324	249324								
552	No 1 Power Boiler		121703	Dynamic Reporter "Env - 1C - Morning Utilities Report"								
553	No. 2 Power Boiler		28699	Dynamic Reporter "Env - 1C - Morning Utilities Report"								
554	No. 3 Power Boiler	197559	47157	Dynamic Reporter "Env - 1C - Morning Utilities Report"								
555	No. 8 Power Boiler on Oil	197323	0	Dynamic Reporter "Env - 1C - Morning Utilities Report"								
556	No. 8 Power Boiler on Diesel		0	Dynamic Reporter "Env - 1C - Morning Utilities Report"								
557	Portable Generators on Diesel		0	Utilities cost statement & Accounting Worksheet			0	$/yr	1 2	$/gal diesel		
558	Recovery Boiler	51240	51765	Dynamic Reporter "Env - 1C - Morning Utilities Report"								
559							Total Oil					
560	Fuel Oil - Total Adjusted to Inv (BBL/yr)		242651	"STATS & COSTS" Report under "Fuel Oil Usage - BBLs" "Total"			10191.342	1000 gal /yr	Oil			
561	No 1 Power Boiler		118445 6958	Calculated		0 488131909	1599293.329	MM BTU/yr	Oil	19615 83333	BTU/lb	
562	No. 2 Power Boiler		27930.88932	Calculated		0 11510725	81 530736	MM lb/yr	Oil			
563	No 3 Power Boiler		45894 87256	Calculated		0 189139433	18300	BTU/lb	Oil			
564	No 8 Power Boiler on Oil		0	Calculated			1492012 469	MM BTU/yr Ck.	Oil			
565	No 8 Power Boiler on Diesel		0	Calculated			156 9266667	MMBTU/1000 gal	Oil			
566	Portable Generators on Diesel		0									
567	Recovery Boiler		50379 54234	Calculated	242651	Fuel Oil Sum Check						

ATTACHMENT 1

Row #												
568					2115 940778							
569	Fuel Oil [# 6] Analysis											
570	% Sulfur		1 497083333	Fuel Oil Analysis - Average from below								
571	Btu/gal		156926 6667	Fuel Oil Analysis - Average from below								
572							from Dynamic Reporter					
573	Steam Production (1,000 lb/yr of 1000 BTU Steam)		5188968.157	Total Steam - Calculated		% of total steam	k lb steam / hr	k lb 1000 BTU steam/	As Is Steam	BTU/lb Steam	% of cap	
574	No. 1 Power Boiler		537416 88	Dynamic Reporter "Env - 1C - Morning utilities Report"		0 103569123	59 43305556	66 47587264	480480	1118 5	0 4952755	
575	No 2 Power Boiler		625357.824	Dynamic Reporter "Env - 1C - Morning utilities Report"		0 120516797	68 74621136	76 89263741	559104	1118 5	0 5728851	
576	No. 3 Power Boiler		840324 576	Dynamic Reporter "Env - 1C - Morning utilities Report"		0 161944446	91 83761781	102.7203755	751296	1118 5	0 6802787	
577	No. 8 Power Boiler on Oil		0	Dynamic Reporter "Env - 1C - Morning utilities Report"		0		0				
578	No. 8 Power Boiler on Diesel		0	Dynamic Reporter "Env - 1C - Morning utilities Report"		0		0				
579	Recovery Boiler		3185868 877	Dynamic Reporter "Env - 1C - Morning utilities Report"		0 613969633	352 8680762	394 6829433	3083808	1033 09573	0 9001737	
580						1	572 8849609	640 7718288	4874688			
581	Bark and Knots - Mtons (OD)/yr						1185	BTU/lb Steam				
582	Purchased Bark		39486	"STATS & COSTS" Report		Total Power Boilers	220 0168847					
583	Self-Produced Bark		82911	"STATS & COSTS" Report								
584	Reclaim - Knots		0	"STATS & COSTS" Report								
585	Total hog fuel Mton/yr (OD)		122397									
586	Total hog fuel wet ton/yr		236698.6195	calculation		0 57	Bark % OD					
587	Total hog fuel MMBTU/yr		2366986 195	calculation	5000 BTU/wet lb bark							
588	Total hog fuel ODT/yr		134918 2131									
589												
590	PM Emission Rate (lbs/hr)											
591	A Scrubber - No. 1 and 2 Power Boilers		43 11566667	Stack Test - Power Boiler Scrubber A PM Data Below								
592	B Scrubber - No 3 Power Boiler		34 32666667	Stack Test - Power Boiler Scrubber B PM Data Below								
593	Recovery Boiler		23.6805	Stack Test - Recovery Boiler PM Data Below								
594	Rec Boiler - Vol. Flow Rate (dscfm)		121095.75	Stack Test - Recovery Boiler PM Data Below								
595	SO2 Conc (ppm)											
596	Recovery Boiler		163 4262295	Dynamic Reporter "Env - 3I - Air Report - Recovery" (with SD (March 1-20) extraneous readings removed]								
597	VGS		12	Dynamic Reporter "Env - 3H - Air Report - Acid Plant"								
598												
599	Pulp Production - Tons (ADUBT)/yr		223275 8763	Calculation Below								
600	Pulp Production - Tons (ADUBT)/day		642 6092706									
601	Pulp Production - Tons (ODUBT)/yr		200948 2887									
602	Pulp Production - Tons (ADMT)/yr		145883	MT Bleached [net] production								
603	Pulp Production - Tons (ADT)/yr		160806 8309	T Bleached [net] production								
604	Pulp Production - Tons (ADMT)/day		419.86519	MT Bleached [net] production								
605	Pulp Mil Op Days/yr.		347 452									
606	Recovery Boiler SSL Burned Tons SSLS/yr		241500									
607	ASB Effluent [E3] flow rate	[Env 2A Flow Report]	4373 7	Mgal/yr	11 95	mgd						
608	ASB Effluent [E3] flow rate		36498.5265	Mlb/yr								
609	Digesters/Year		6838	no /year	Stats & Costs page 25							
610	SSL Burned/Year		483	Million OD lb/yr	483	Env. 1C						
611	Chip Usage		427309	MT/yr	Stats & Costs page 8							
612												
613												
614												
615	Operating Hours											
616	Emission Unit	Total (hrs/yr)	Total (Equiv. Days/yr)									
617	No 1 Power Boiler	8084 39	336.8495833									
618	No 2 Power Boiler	8132 87	338 8695833									
619	No. 3 Power Boiler	8180 7	340.8625									
620	No. 8 Power Boiler on Oil	0	0									
621	No. 8 Power Boiler on Dies	0	0									
622	Recovery Boiler	8071 97	336 3320833									
623	SO2 VGS System	8495	353 9583333	And Molten S tank								
624	Mill Wide	8338 848	347 452									
625												
626												
627												
628	Fuel Oil - Usage											
629	Units	No. 1 Power Boiler	No. 2 Power Boiler	No. 3 Power Boiler	PB Total	No 8 Power Boiler on	Recovery Boiler	Total				
630	Barrels (BBL)/yr (a)											
631	BBL/yr (Adjusted) (b)	118445 6958	27930 88932	45894.87256	192271 4577	0	50379 54234	242651				
632	1000 gal/yr	4974 719222	1173 097351	1927.584648	8075 401222	0	2115 940778	10191 342				
633	Heat Input MMBTU/yr	780666 1052	184090 257	302489 4335	1267245 796		332047 5332	1599293 329				
634	42	gal/bbl										
635	1000 gal/day (c)	14.76836983	3 461795951	5 655021153			6 291224903	30.17641183				
636												
637	Example Calculations											
638	BBL/yr (Adjusted)	= [Barrels (No. 1 PB)] x [Barrels (Total-Adj)] / [Barrels (Total)]										
639	1000 gal/yr	= [Barrels (No 1 PB Adj)] x [42 gal/barrel] / 1000										
640	1000 gal/day	= [___ 1000 gal/yr] / [Days of Operation (days/yr)]										

ATTACHMENT 1

Row #												
641												
642	Notes											
643	(a) Fuel Usage in BBL/yr for each boiler is taken from the Mikon Reports "Power Boiler Summary" and "Recovery Boiler Summary."											
644	(b) Total Adjusted Fuel Usage is taken from the "STATS & COSTS" Report under "Fuel Oil Usage - BBLS" "Year Actual" "Total."											
645	Each boiler's Adjusted Fuel Usage is back calculated from this "Total" by a ratio.											
646	(c) Used as Ozone Season Rate (gal/day). The Ozone Season applies from May 31 to August 31.											
647												
648												
649	Fuel Oil Analysis -	Report Year										
650		Colonial Oil Industries No. 6 Oil			No. 2 Oil							
651	Month	% S	Btu/gal	% Nitrogen	% S	Btu/gal	% Nitrogen					
652	January	1 92	158220									
653		1.64	158414									
654	February	1.68	155799									
655		1.59	158006									
656	March	1.44	155879									
657		2.06	153627									
658	April	2.06	155413									
659		1.17	158499									
660	May	1 49	155830									
661		1.52	156982									
662	June	1 39	157762									
663		1.59	156942									
664	July	1.41	156157									
665		1.37	156718									
666	August	1.61	155043									
667		1.14	160014									
668	September	1.44	155555									
669		1.43	156984									
670	October	1.13	160279									
671		1.26	159804									
672	November	1.35	156984									
673		1.3	154572									
674	December	1.4	156186									
675		1.54	156571									
676	Average	1 497083333	156926.6667									
677		BTU/1000 gal	156926666.7									
678		mmBTU/1000 gal.	156.9266667									
679												
680												
681												
682												
683			Report Year Boiler Steam Production (1000 BTU Steam)			MMBTU/hr	MMBTU/hr					
684	Boiler	Max Cap (1000 lb/hr) As	1,000 lb/yr	1,000 lb/hr	1,000 lb/day	Permitted Oil	Permitted bark	Oil Spec. Efficiency	Bark Spec. Efficiency	Actual Op. % of Cap.		
685	No. 1 Power Boiler	120	537416 88	66 47587264	1595 420943	185		0 648648649		0 467481523		
686	No. 2 Power Boiler	120	625357 824	76 89263741	1845 423298	184	218	0 652173913	0 550458716	0 540735847		
687	No. 3 Power Boiler	135	840324 576	102.7203755	2465.289012	207	245	0.652173913	0 551020408	0.642102676		
688	No. 8 Power Boiler on Oil		0									
689	No 8 Power Boiler on Diesel		0									
690	Recovery Boiler	392	3185868 877	394.6829433	9472.390638		653.1		0 600214362	0 795964768		
691			2905909 2	360								
692		PBs	2003099 28	246.0888856								
693	Example Calculation:			312.0181892								
694	1,000 lbs/hr	= [____ 1,000 lbs/yr] / [Hours of Oper (hrs/yr)]			Conversion to 1000 BTU Steam:		1.165	PBs	1.385	0.855595668		
695	1,000 lbs/day	= [____ 1,000 lbs/yr] / [Days of Oper (days/yr)]			[BTU 1000 lb/BTU actual lb]		1.264935689	Rec	1.44	0.878427562		
696												
697	Note:						bbl/yr	Heat Input MMBTU/yr	%of Total PB Input			
698	* Steam Production (1,000 lbs/yr) taken from the Mikon Reports "Power Boiler Summary" and "Recovery Boiler Summary"					Total Oil usage	242651	1599293.329				
699						Power Boiler Oil Usage	192271.4577	1267245.796	0 377485195			
700	Heat Output (1000 Btu/lb)											
701	Fuel Source	Boiler Steam Eff.	No. 2 Power Boiler	No. 3 Power Boiler	No. 2 & 3		ODT/yr	Heat Input MMBTU/yr				
702	Total from Steam	1	76892.63741	102720.3755	179613.0129	Bark via Steam *	208982.8366	2089828.366	0 622514805			
703	- Oil	0.65	14712 96935	24034.38969	38747.35905	Bark via weightometer	236698 6195	2366986 195				
704	- Bark by Diff.	0.55	62179 66805	78685.98583	140865.6539							
705						Total PB Heat Input	MMBTU/yr	3357074 161	1			
706	Example Calculation:											
707	Total (1000 Btu/hr)	= [Steam Production (1000 lbs/hr)] x [1000 Btu/lb (Steam)]				* used for AOR						
708	Oil (1000 Btu/hr)	= [Oil Usage No. 2 PB (1000 gal/yr)] x [Heat Cap (Btu/gal)] x [Boiler Eff (Oil)] / [Hours of Oper No. 2 PB (hrs/yr)]										
709	Bark (1000 Btu/hr)	= [Heat Output Total] - [Heat Output from Oil]										
710												
711	Bark - Usage (Steam Meter Basis)											
712	Units	No. 2 Power Boiler	No. 3 Power Boiler	Total	Total Hogfuel OOMT	Note.						
713	Lbs (Bark-wet)/hr	22610.78838	28613.08575	51223 87414	Year	5000	Btu/lb Bark-wet					

ATTACHMENT 1

Row #												
714	Tons (Bark-wet)/yr	91945.30126	117037.5353	208982 8366	108065.8607	8771.929825	BTU/lb OD Bark					
715		271.3294606	343.3570291	Value used	Day	0.57	OD lb bark/lb Bark-wet	467.0429672	ODT bark/day			
716		0.439965802	0.560034196		318.9010346	10	mm BTU/Ton Bark-wet	423 6986003	ODMT/day			
717	MMBTU Heat Input	919453 0126	1170375.353	2089828 366								
718												
719	Bark Usage Analysis (Steam Meter vs. Weightometer - Bark and Chip)											
720			Bark Weightometer1	Chip Weightometer Basi	Chips Used ODMT/yr	Chip Prod. ODMT/yr	0.55	Chip % OD				
721	Purchased Bark	MTons (OD)/yr	39486	39486								
722	Self-Produced Bark	MTons (OD)/yr 2 and 3	82911	85532.76157	427309	417601.13	from Cost & Stats Rept.	p 8 of 35				
723	Reclaim - Knots	MTons (OD)/yr	0	0		ODT/yr	inventory adjusted.					
724	Total Bark	MTons (OD)/yr	122397	125018.7616		460321.7256	37144.35	jan p 26	beginning chip inventory			
725	Notes:					Wet T/yr	27436.48	dec p.26	ending chip inventory			
726	1 Bark Weightometer values taken from "STATS & COSTS" Report under "Purchased Bark", "Self-Produced Bark", and "Knots."					836948.592						
727	1 Self-Produced Bark from Bark Weightometer.					2364 539871						
728	2 Self-Produced Bark from Chip Weightometer at bark =			0.17	of chips	Wet T/day						
729												
730			Bark Weightometer	Chip Weightometer	Steam Meter							
731	% OD		0 57	0 57								
732	Conversion Factor	Tons/Mtons	1.1023	1 1023								
733	Total Bark	Tons (Bark-Wet)/yr	236698 8195	241768.7384	208982.8366							
734		ODT/day	396.9746799		Value Used							
735	Bark Usage Difference from Steam meter Calc.		-27715 7829	-32785 9018								
736		% Difference	-0.132622293	-0.156883227								
737												
738		[Steam Meter vs. Weight] = Tons (Bark-wet)/yr [Steam Meter - Weightometer]										
739												
740		Stack Tests - Particulate Matter (PM) Emissions										
741												
742												
743	A Scrubber Stack Tests [No. 1 & 2 PB]											
744		PM Emission Rate [lbs (PM)/hr]										
745	Date	Run	Test Average	Volume [dscf/m]	Volume [dscf/m]	Steam Prod. Klb/hr	% of Capacity	O2 [%V,dry]	NOX [ppmV, dry]	SO2 [ppmV, dry	CO [ppmV,dry]	
746	38148	30.984		92695 6		195.246	0 813525	11.4	79.7	3.7	255.7	
747	38148	41.218		100362.6		197.5158	0 8229825	12.3	86.3	4 1	175.7	
748	38148	57 145	43.11566667	90347	94468 4	197.3	0 822083333	11.8	79.4	3 7	248.6	
749												
750												
751												
752												
753												
754												
755												
756		43 11566667	43.11566667	94468 4	94468 4	196 6872667	0.819530278	11 83333333	81 8	3.833333333	226 66667	
757												
758												
759	B Scrubber Stack Tests [PB # 3]											
760		PM Emission Rate [lbs (PM)/hr]										
761	Date	Run	Test Average	Volume [dscf/m]	Volume [dscf/m]	Steam Prod. Klb/hr	% of Capacity	O2 [%V,dry]	NOX [ppmV, dry]	SO2 [ppmV, dry	CO [ppmV,dry]	
762	38147	20.9		98106.4		122.164	0.904918519	11.5	53.8	0.8	133 3	
763	38147	47 64		89716 4		123	0 911111111	12 4	62.1	0 3	115.8	
764	38147	34 44	34.32666667	90837 6	92886 8	117.333	0 869133333	12 4	63.7	0 4	150 6	
765												
766												
767												
768												
769												
770												
771	Average	34.32666667	34.32666667	92886.8	92886 8	120 8323333	0.895054321	12.1	59 86666667	0.5	133 23333	
772												
773												
774	Recovery Boiler Stack Tests											
775		Vol Flow Rate [dscfm]		PM Emission Rate [lbs (PM)/hr]								
776	Date	Run	Test Average	Run	Test Average	SSLS lb/hr	% of Capacity	Steam kpph	O2 [%V,dry]	NOX [ppmV, dry	SO2 [ppmV,	CO [ppmV,dr
777	38131	114266 4		21.151		65111	0 930157143	375	4.2	595.5	195.8	1 3
778	38131	119454.9		19 75		69665	0 995214286	399	3.9	615 8	207.8	1 1
779	38131	119059.2		23.102		66210	0 945857143	354	3 9	604.1	219 9	3 2
780	38132	124031		24 97		68046	0.972085714	389				
781	38132	124244 8		22 91		70377	1 005385714	398				
782	38132	125518 2	121095.75	30 2	23 6805	68557	0 979385714	392				
783												
784												
785												
786	Average	121095.75	121095.75	23.6805	23.6805	67994 33333	0.971347619	384.5	4	605.1333333	207 83333	1 86666667

ATTACHMENT 1

Row #												
787												
788												
789												
790												
791	**EU ID 001**	**No. 1 Power Boiler - Oil Fired**										
792												
793	CO											
794	lbs (CO)/1000 gal (Fuel Oil)		5	Emission Factor from AP-42, Table 1 3-1[9/98]		226 6666667	ppmV CO 2004	385	dscf/mole			
795	1000 gal/yr [fuel oil]		4974.719222			94468 4	dscf/m flue gas	28	lb CO/mole CO			
796	Op. Days/yr		336 8495833			21 41283733	dscf/min CO	93 43783564	lb CO/hr			
797	Tons (CO)/yr		12.43679806					377 693952	T CO/yr			
798	lbs (CO)/day		73 84184913		Method Code	3		2242 508055	lb CO/day			
799	Example Calculation:											
800	Tons (CO)/yr	= [Fuel Oil Usage (1000 gal/yr)] x [lbs (CO)/1000 gal (Fuel Oil)] / [2000 lbs/ton]										
801	lbs (CO)/day	= [Ozone Rate (1000 gal/day)] x [lbs (CO)/1000 gal (Fuel Oil)]										
802												
803	NOx					A Scrubber						
804	lbs (NOx)/1000 gal (Fuel Oil)		47	Emission Factor from AP-42, Table 1 3-1[9/98]		81.8	ppmV NOX 2004	385	dscf/mole	Note for 2005		
805	1000 gal/yr [fuel oil]		4974 719222			94468 4	dscf/m flue gas	46	lb NO2/mole NO2	Use 95% NO	30	NO lb/mole
806	Op Days/yr		336 8495833			7 72751512	dscf/min NOX	55 39725125	lb NOX/hr	30 8	instead of	46
807	Tons (NOx)/yr		116 9059017					223 926492	T NOX/yr			
808	lbs (NOx)/day		694.1133818		Method Code	3		1329 53403	lb NOX/day			
809	Example Calculation											
810	Tons (NOx)/yr	= [Fuel Oil Usage (1000 gal/yr)] x [lbs (NOx)/1000 gal (Fuel Oil)] / [2000 lbs/ton]										
811	lbs (NOx)/day	= [Ozone Rate (1000 gal/day)] x [lbs (NOx)/1000 gal (Fuel Oil)]										
812												
813	Lead (H110)											
814	lbs (Pb)/hr [A scrubber - No 1 & 2 PBs]		0 07	Average from 06-14-95 Stack Test Data								
815	Tons (Pb)/yr [A scrubber (No 1 & 2 PBs)]		0 28295365									
816	Tons (Pb)/yr [No 1 PB using ratio of Oil Usage]		0 22896177									
817	lbs (Pb)/day		1.359430327		Method Code	2						
818	Example Calculation:											
819	Tons (Pb)/yr [A scrubber - No. 1 & 2 PBs]		= [lbs (Pb)/hr from A scrubber] x [Hours of Oper (hrs/yr)] / [2000 lbs/ton]									
820	Tons (Pb)/yr [No. 1 PB using ratio of Oil Usage]		= [Tons (Pb)/yr A scrubber] x [Oil Usage(1000 gal/yr) No1PB] / [Oil Usage(1000 gal/yr) No1&2PB]									
821	lbs (Pb)/day		= [Tons (Pb)/yr (No 1 PB using ratio of Oil)] x [2000 lbs/ton] / [Days of Operation (days/yr)]									
822												
823	SO2											
824	A scrubber efficiency for SO2 (%)		0 9		A Scrubber pH =	6	Env - 3K - Air Report - Power Boilers					
825	Density of Oil (lbs/gal)		8									
826	Tons (SO2)/yr		59.58055389		Method Code	2						
827	lbs (SO2)/day		353.7516852									
828	Example Calculation											
829	Tons (SO2)/yr	= [Oil Usage(1000 gal/yr)] x Density of Oil(lb/gal) x [%S/100] x [MW(SO2)/MW(S)] x [1 - A scrub eff SO2(%)] / [2000 lbs/ton]										
830	lbs (SO2)/day	= [Ozone Rate (1000 gal/day)] x Density of Oil (lbs/gal) x [%S / 100] x [MW (SO2) /MW (S)] x [1 - A scrubber eff SO2 (%)]										
831												
832	VOC											
833	lbs (VOC)/1000 gal (Fuel Oil)		0 76	Emission Factor from AP-42, Table 1 3-3 [9/98]			Utility Boiler >100MMBTU/hr					
834	Tons (VOC)/yr		1.890393305									
835	lbs (VOC)/day		11.22396107		Method Code	3						
836	Example Calculation											
837	Tons (VOC)/yr	= [Oil Usage (1000 gal/yr)] x [lbs (VOC)/1000 gal (Fuel Oil)] / [2000 lbs/ton]										
838	lbs (VOC)/day	= [Ozone Rate (1000 gal/day)] x [lbs (VOC)/1000 gal (Fuel Oil)]										
839												
840	PM											
841	lbs (PM)/1000 gal (Fuel Oil)		16 97819583	Emission Factor from AP-42, Table 1 3-1 [9/98]		[(9 19) S + 3 22)]		9 319939512	A Scrubber Annual Op./test ratio			
842	Sulfur Content (% by weight)		1 497083333		Table 1 3-5 [9/98]	8 34[1 12S + 37] = 9 34S + 3 09			0 651690722			
843	A scrubber efficiency for PM (%)		0 8									
844	Tons (PM)/yr		8.446175718		40 95177418	A actual x 1999 PM Ratio #1PB/A Scrubber.*		0.360561056				
845	lbs (PM)/day		50.14805501		243.1457612							
846	Example Calculation.					Method Code	2					
847	Tons (PM)/yr	= [Oil Usage (1000 gal/yr)] x [lbs (PM)/1000 gal (Oil)] x [1 - A scrubber eff PM] / [2000 lbs/ton]				=[Actual A Scrubber PM (lb/hr)] x [1999 test ratio (36)] x [op hr/yr] / 2000						
848	lbs (PM)/day	= [Ozone Rate (1000 gal/day)] x [lbs (PM)/1000 gal (Oil)] x [1 - A scrubber eff PM]				* in 1999 separate boiler emissions tests were run.						
849												
850	PM10											
851	lbs (PM10)/1000 gal (Fuel Oil)		14 675078	Emission Factor from AP-42, Table 1 3-5		[7.17 x (1.12 S + .37)]						
852	Sulfur Content (% by weight)		1.497083333					PM10/PMTotal				
853	Tons (PM10)/yr	[efficiency is in the calc]	7 300439262	Based on PM above & PM10/PM em fact ratio		35 39660434	0 864348494	0 85971223				
854	lbs (PM10)/day		43.34539583			210 1626726						
855	Example Calculation											
856	Tons (PM10)/yr	= [Oil Usage (1000 gal/yr)] x [lbs (PM10)/1000 gal (Oil)] x [1 - A scrubber eff PM] / [2000 lbs/ton]				Method Code	4					
857	lbs (PM10)/day	= [Ozone Rate (1000 gal/day)] x [lbs (PM10)/1000 gal (Oil)] x [1 - A scrubber eff PM]										
858												
859	Total HAPS											

ATTACHMENT 1

Row #												
860						Using No 1 PB (max) hr/yr						
861		Methanol		0 75	lb/hr total for all PB	6063 2925	lb/yr	0.030173397	lb/ODUBT			
862				1991 test by Rayonier (M Folsom)								
863												
864							HAPS [lb/yr]					
865		0 030173397	lb MeOH/ODUT	from all power boilers	G.RWH/MACT methanol/Methanol Data Review Sortll 9904 xls.			Oil	Oil	Oil	Oil	
866		200948 2887	ODUBT/yr				All PB Oil Lb/yr	No 1 PB lb/yr	No. 2 PB lb/yr	No. 3 PB lb/yr	Rec lb/yr	
867		3.03164625	T MeOH/yr All PB	No power boiler can be above the 5 ton/yr threshold		2288.803154	2288 803154	1409 979855	332 4898472	546 3334514	0	
868			from Oil & Bark		% of Total Heat Input	% of Oil Heat Input						
869		780666.1052	Heat input # 1 PB on oil		0.232543598	0 488131909						
870		184090 257	Heat input # 2 PB on oil		0.054836518	0.11510725						
871		919453.0126	Heat input # 2 PB on bark		0.273885225							
872		302489 4335	Heat input # 3 PB on oil		0 090105079	0 189139433						
873		1170375.353	Heat input # 3 PB on bark		0 348629579							
874		1267245.796	Total Heat input from Oil for PBs									
875		3357074 161	Total Heat input to power boilers (oil & bark)		1							
876	Ton HAPS/yr	1599293 329	Total Heat Input from Oil total All boilers			1						
877	No. 1 PB (Oil fired only)	332047 5332	Heat input Recovery Boiler on Oil			0 207621408						
878		Methanol			No 1 PB MeOH/VOC =	0 372932937						
879	0 704989928	1 144401577	Ton MeOH/yr	All power boiler total from Oil								
880		Benzene			0 00021	lb Benzene/1000 gal						
881		1.3382E-06	lb/MMBTU from Oil	NCASI factor	1 3382E-06	lb/MMBTU oil						
882		1599293 329	MMBTU/yr from Oil	All power & recovery oil usage basis								
883	0 000522346	0 001070091	Ton Benzene/yr	All power & recovery oil usage basis			2.14018182	1.044691037	0 246350444	0 404792776	0 4443476	
884		Acrolein										
885		0 01	ppm in fuel oil - NCASI									
886		81 530736	MM lb/yr Oil									
887	0 000198989	0.000407654	Ton /yr	All power & recovery oil usage basis			0.81530736	0 397977538	0 093847788	0.154206772	0 1692753	
888		Arsenic										
889		0 00132	lb/1000 gal oil - NCASI									
890		10191 342	1000 gal. Oil /yr									
891	0 003283315	0.006726286	Ton /yr	All power & recovery oil usage basis			13.45257144	6 566629374	1 548488504	2.544411735	2.7930418	
892		Antimony Comp.										
893		0 01	ppm in fuel oil - NCASI									
894		81 530736	MM lb/yr Oil									
895	0 000198989	0.000407654	Ton /yr	All power & recovery oil usage basis			0.81530736	0 397977538	0 093847788	0 154206772	0 1692753	
896		Barium Compounds										
897		0 00257	lb/1000 gal oil - NCASI									
898		10191.342	1000 gal Oil /yr									
899	0.006392514	0.013095874	Ton /yr	All power & recovery oil usage basis			26.19174894	12 7850284	3 014860193	4.953892544	5 4379678	
900		Beryllium Comp.										
901		0 08	ppm in fuel oil - NCASI									
902		81.530736	MM lb/yr Oil									
903	0 00159191	0 003261229	Ton /yr	All power & recovery oil usage basis			6.52245888	3.183820302	0 750782305	1.233654175	1.3542021	
904		Cadmium Comp.										
905		0 3	ppm in fuel oil - NCASI									
906		81.530736	MM lb/yr Oil									
907	0 005969663	0.01222961	Ton /yr	All power & recovery oil usage basis			24.4592208	11.93932613	2 815433644	4 626203154	5.0782579	
908		Chromium Comp.										
909		0 000845	lb/1000 gal - NCASI	0 4	ppm in fuel oil - NCASI							
910		10191.342	1000 gal oil/yr	81.530736	MM lb/yr Oil							
911	0 002101819	0 004305842	Ton/yr	0 016306147	Ton /yr		8 61168399	4.203637743	0.991267262	1.628809027	1 78797	
912		Cobalt Comp.		All power & recovery oil usage basis								
913		0 15	ppm in fuel oil - NCASI									
914		81 530736	MM lb/yr Oil									
915	0 002984832	0.006114805	Ton /yr				12 2296104	5 969663067	1.407716822	2.313101577	2 5391289	
916		Copper Comp		All power & recovery oil usage basis								
917		0.00176	lb/1000 gal - NCASI	5 3	ppm in fuel oil - NCASI							
918		10191.342	1000 gal oil/yr	81.530736	MM lb/yr Oil							
919	0 004377753	0.008968381	Ton/yr	0.21605645	Ton /yr		17.93676192	8.755505832	2.064651339	3 39254898	3.7240558	
920		Hydrogen Fluoride		All power & recovery oil usage basis								
921		0 00023	lb/MMBTU from Oil	NCASI factor								
922		1599293.329	MMBTU/yr from Oil									
923	0.089776602	0.183918733	Ton Mn/yr				367.8374657	179 5532042	42 34075912	69.5725697	76.370933	
924		Lead Compounds		All power & recovery oil usage basis								
925		0.00151	lb/1000 gal - NCASI	1.37	ppm in fuel oil - NCASI	0 00001						
926		10191.342	1000 gal oil/yr	81 530736	MM lb/yr Oil	lb/MMBTU oil						
927	0 003755913	0 007694463	Ton/yr	0 055848554	Ton /yr	15 99293329	15.38892642	7.511826026	1.771377001	2 910652818	3 1950706	
928		Manganese Comp.		All power & recovery oil usage basis								
929		0.003	lb/1000 gal - NCASI	0.49	ppm in fuel oil - NCASI	0.00002						
930		10191.342	1000 gal oil/yr	81.530736	MM lb/yr Oil	lb/MMBTU oil						
931	0.007462079	0 015287013	Ton/yr	0 01997503	Ton /yr	31.98586658	30 574026	14.92415767	3 519292054	5.782753943	6 3478223	
932		Mercury Comp.		All power & recovery oil usage basis								

ATTACHMENT 1

Row #												
933		0 00000021	lb/MMBTU from Oil	0 006	ppm in fuel oil - NCASI							
934		1599293.329	MMBTU/yr from Oil	81.530736	MM lb/yr Oil							
935	8.19699E-05	0.000167926	Ton Mn/yr	0.000244592	Ton /yr		0 335851599	0.163939882	0.038658954	0 063522781	0 06973	
936		Naphthalene		All power & recovery oil usage basis								
937		0 00113	lb/1000 gal - NCASI									
938		10191.342	1000 gal oil/yr									
939	0 002810716	0 005758108	Ton/yr				11.51621646	5 621432721	1 325600007	2.178170652	2.3910131	
940		Nickel Comp.		All power & recovery oil usage basis								
941		0 0845	lb/1000 gal - NCASI	24	ppm in fuel oil - NCASI							
942		10191 342	1000 gal oil/yr	81.530736	MM lb/yr Oil							
943	0.210181887	0.4305842	Ton/yr	0 978368832	Ton /yr		861.168399	420.3637743	99.1267262	162 8809027	178 797	
944		Selenium Comp										
945		0 09	ppm in fuel oil - NCASI									
946		81.530736	MM lb/yr Oil									
947	0.001790899	0.003668883	Ton /yr	All power & recovery oil usage basis			7 33776624	3 58179784	0 844630093	1.387860946	1.5234774	
948		Silver										
949		0 0002	ppm in fuel oil - NCASI									
950		81 530736	MM lb/yr Oil									
951	3.97978E-06	8.15307E-06	Ton /yr	All power & recovery oil usage basis			0.016306147	0 007959551	0 001876956	0 003084135	0 0033855	
952		Zinc Comp.										
953		0 00132	lb/1000 gal - NCASI	0 77	ppm in fuel oil - NCASI							
954		10191 342	1000 gal oil/yr	81.530736	MM lb/yr Oil							
955	0.003283315	0 006726286	Ton/yr	0 031389333	Ton /yr		13 45257144	6 566629374	1 548488504	2.544411735	2.7930418	
956		PCBs										
957		0 05	ppm in fuel oil - NCASI									
958		81 530736	MM lb/yr Oil									
959	0 000994944	0.002038268	Ton /yr	All power & recovery oil usage basis			4 0765368	1.989887689	0 469238941	0 771033859	0 8463763	
960		Formaldehyde										
961		0 0141	lb CHOH/hr	Stack test 1991 by ESE for A scrubber								
962		8084 39	hr/yr									
963	0.026507621	0 113989899	Ton /yr	Double for both PB scrubbers			227.979798	111.2842139	26 2421276	43 11996974	47.333487	
964		Chloroform										
965		0 0675	lb CHCl3/hr	Stack test 1991 by ESE for A scrubber								
966		8084.39	hr/yr									
967	0 126898187	0.545696325	Ton /yr	Double for both PB scrubbers			1091 39265	532.7435774	125.6272066	206 425387	226 59648	
968		Total HAPS										
969		2.51652726	Ton total HAPS/yr	For all PBs & recovery oil		5033.054521	5033 054521	2749.536513	648.3730753	1065 379599	569 76533	
970		5033 054521	lb total HAPS/day				25000	10000	lb/yr			
971	Total HAPS						total	individual	thresholds			
972	Below Threshold	1 206160169	Ton Total HAPS/yr from No 1 PB on oil		2412 320338	lb/yr						
973		7.161417017	lb/day Total HAPS		Method Code	4						
974												
975	Methanol											
976	Below Threshold	0.704989928	Ton MeOH/yr from No 1 PB on oil		0 584491136	Methanol % of Total						
977		4.185784769	lb/day MeOH		Method Code	4						
978												
979												

ATTACHMENT 1

Row #							
980	EU ID 002	No. 2 Power Boiler - Oil Fired					
981	CO						
982	lbs (CO)/1000 gal (Fuel Oil)		5	Emission Factor from AP-42, Table 1 3-1[9/98]			
983	Tons (CO)/yr		2 932743379				
984	lbs (CO)/day		17 30897975		Method Code	3	
985	Example Calculation:						
986	Tons (CO)/yr	= [Fuel Oil Usage (1000 gal/yr)] x [lbs (CO)/1000 gal (Fuel Oil)] / [2000 lbs/ton]					
987	lbs (CO)/day	= [Ozone Rate (1000 gal/day)] x [lbs (CO)/1000 gal (Fuel Oil)]					
988							
989	NOx						
990	lbs (NOx)/1000 gal (Fuel Oil)		47	Emission Factor from AP-42, Table 1.3-1[9/98].			
991	Tons (NOx)/yr		27 56778776				
992	lbs (NOx)/day		162 7044097		Method Code	3	
993	Example Calculation						
994	Tons (NOx)/yr	= [Fuel Oil Usage (1000 gal/yr)] x [lbs (NOx)/1000 gal (Fuel Oil)] / [2000 lbs/ton]					
995	lbs (NOx)/day	= [Ozone Rate (1000 gal/day)] * [lbs (NOx)/1000 gal (Fuel Oil)]					
996							
997	Lead						
998	lbs (Pb)/hr [A scrubber - No 1 & 2 PBs]		0 07	Average from 06-14-95 Stack Test Data			
999	Tons (Pb)/yr [A scrubber - No. 1 & 2 PBs]		0.28465045				
1000	Tons (Pb)/yr [No 2 PB using ratio of Oil Usage]		0 054315656		Method Code	2	
1001	lbs (Pb)/day		0 320569673				
1002	Example Calculation:						
1003	Tons (Pb)/yr [A scrubber - No 1 & 2 PBs]		= [lbs (Pb)/hr from A scrubber] x [Hours of Oper (hrs/yr)] / [2000 lbs/ton]				
1004	Tons (Pb)/yr [No 2 PB using ratio of Oil Usage]		= [Tons (Pb)/yr A scrubber] x [Oil Usage(1000 gal/yr)No2PB] / [Oil Usage (1000 gal/yr)No 1&2 PB]				
1005	lbs (Pb)/day		= [Tons (Pb)/yr (No 2 PB using ratio of Oil)] x [2000 lbs/ton] / [Days of Operation (days/yr)]				
1006							
1007	SO2						
1008	A scrubber efficiency for SO2 (%)		0 9		A Scrubber Average pH=	6	
1009	Density of Oil (lbs/gal)		8				
1010	Tons (SO2)/yr		14 04979595				
1011	lbs (SO2)/day		82 92155234		Method Code	2	
1012							
1013	Example Calculation:						
1014	Tons (SO2)/yr	= [Oil Usage(1000 gal/yr)] x Density of Oil(lb/gal) x [%S/100] x [MW(SO2)/MW(S)] x [1 - A scrub eff SO2(%)] / [2000 lbs/ton]					
1015	lbs (SO2)/day	= [Ozone Rate (1000 gal/day)] x Density of Oil (lbs/gal) x [%S / 100] x [MW (SO2) /MW (S)] x [1 - A scrubber eff SO2 (%)]					
1016							
1017	VOC						
1018	lbs (VOC)/1000 gal (Fuel Oil)		0 76	Emission Factor from AP-42, Table 1 3-3 [9/98].			
1019	Tons (VOC)/yr		0 445776994				
1020	lbs (VOC)/day		2 630964923		Method Code	3	
1021	Example Calculation						
1022	Tons (VOC)/yr	= [Oil Usage (1000 gal/yr)] x [lbs (VOC)/1000 gal (Fuel Oil)] / [2000 lbs/ton]					
1023	lbs (VOC)/day	= [Ozone Rate (1000 gal/day)] x [lbs (VOC)/1000 gal (Fuel Oil)]					
1024							
1025	PM						
1026	lbs (PM)/1000 gal (Fuel Oil)		16 97819583	Emission Factor from AP-42, Table 1.3-1 [9/98]		[(9 19) S + 3 22)]	
1027	Sulfur Content (% by weight)		1 497083333		Table 1.3-5 [9/98]	8 34[1.12S + .37] = 9 34S + 3 09	
1028	A scrubber efficiency for PM (%)		0 8				
1029	Tons (PM)/yr		1 991707656				
1030	lbs (PM)/day		11.75500992		Method Code	3	
1031	Example Calculation:						
1032	Tons (PM)/yr	= [Oil Usage (1000 gal/yr)] x [lbs (PM)/1000 gal (Oil)] x [1 - A scrubber eff PM] / [2000 lbs/ton]					
1033	lbs (PM)/day	= [Ozone Rate (1000 gal/day)] x [lbs (PM)/1000 gal (Oil)] x [1 - A scrubber eff PM]					
1034							
1035	PM10						
1036	lbs (PM10)/1000 gal (Fuel Oil)		14 675078	Emission Factor from AP-42, Table 1 3-5.		[7.17 x (1.12 S + .37)]	
1037	Sulfur Content (% by weight)		1 497083333				
1038	Tons (PM10)/yr		1 721529513				
1039	lbs (PM10)/day		10 16042512		Method Code	3	
1040	Example Calculation:						
1041	Tons (PM10)/yr	= [Oil Usage (1000 gal/yr)] x [lbs (PM10)/1000 gal (Oil)] x [1 - A scrubber eff PM] / [2000 lbs/ton]					
1042	lbs (PM10)/day	= [Ozone Rate (1000 gal/day)] x [lbs (PM10)/1000 gal (Oil)] x [1 - A scrubber eff PM]					
1043							
1044	Total HAPS						
1045	Below Threshold	0 324186538	Ton Total HAPS/yr from No. 2 PB on oil		Method Code	4	
1046		1 913341023	lb/day Total HAPS				
1047							
1048	Methanol		0 166244924	Ton MeOH/yr from No 1 PB on oil		Method Code	4
1049	Below Threshold		0 981173476	lb/day MeOH	No 2 PB Oil MeOH/VOC ratio =	0 372932937	
1050							

ATTACHMENT 1

Row #										
1051	EU ID 002	No. 2 Power Boiler - Bark Fired								
1052										
1053	CO									
1054	lbs (CO)/MMBTU Input(Bark-wet)		0.6	Emission Factor from AP-42, Table 1 6-2 [7/01] = 0 6 lb/MMBTU heat input				minus oil from 1 & 2 PB		
1055	Tons (CO)/yr		275 8359038	Steam meter bark usage basis		2004 Test T/yr A Scrub	377 893952	362.3244106	Ton CO/yr	
1056	lbs (CO)/day		1627.976764					2138 429817	lb CO/day	
1057	Example Calculation:				Method Code	3				
1058	Tons (CO)/yr	= [Bark Usage (MMBTU/yr)] x [lbs (CO)/MMBTU (Bark)] / [2000 lbs/ton]								
1059	lbs (CO)/day	= [CO (tons/yr)] x [2000 lb/ton] / [Hours of Oper. (days/yr)]								
1060										
1061	NOx									
1062	lbs (NOx)/MMBTU Input (Bark)		0 22	Emission Factor from AP-42, Table 1 6-2 [7/01] = 22 lb/MMBTU Heat Input			total NOX Oil & bark #2PB			
1063	Tons (NOx)/yr		101 1398314				128 7076191	ton/yr		
1064	lbs (NOx)/day		596 9248133		Method Code	3				
1065	Example Calculation							minus oil from 1 & 2 PB		
1066	Tons (NOx)/yr	= [Bark Usage (MMBTU/yr)] x [lbs (NOx)/MMBTU (Bark)] / [2000 lbs/ton]				2004 Test T/yr A Scrub	223 926492	79.45280253	Ton NOX/yr	
1067	lbs (NOx)/day	= [NOX (tons/yr)] x [2000 lbs /ton] / [Hours of Oper. (days/yr)]						468 928499	lb NOX/day	
1068										
1069	Lead									
1070	lbs (Pb)/MMBTU Input (Bark)		0.000048	Emission Factor from AP-42, Table 1 6-2 [7/01] = .000048 lb/MMBTU Heat Input						
1071	Tons (Pb)/yr		0 022066872		Method Code	3				
1072	lbs (Pb)/day		0 130238141							
1073	Example Calculation:									
1074	Tons (Pb)/yr	= [Bark Usage (MMBTU/yr)] x [lbs (Pb)/MMBTU (Bark)] / [2000 lbs/ton]								
1075	lbs (Pb)/day	= [Pb (tons/yr)] x [2000 lbs /ton] / [Hours of Oper. (days/yr)]								
1076										
1077	SO2									
1078	lbs (SO2)/MMBTU(Bark)		0 025	Emission Factor from AP-42, Table 1.6-2 [7/01] = 025 lb/MMBTU			total SO2 Oil & bark #2PB			
1079	A scrubber efficiency for SO2 (%)		0 9				15 19911221	ton/yr		
1080	Tons (SO2)/yr		1 149316266							
1081	lbs (SO2)/day		6 783236515		Method Code	3				
1082	Example Calculation									
1083	Tons (SO2)/yr	= [Bark Usage (MMBTU/yr)] x [lbs (SO2)/MMBTU (Bark)] x [1-Eff] / [2000 lbs/ton]								
1084	lbs (SO2)/day	= [SO2(tons/yr)] x [lbs (SO2)/ton (Bark)] / [Hours of Oper (days/yr)]								
1085										
1086	VOC									
1087	lbs (VOC)/MMBTU (Bark)		0 038	Emission Factor from AP-42, Table 1 6-3 [7/01] = .038 lb/MMBTU						
1088	Tons (VOC)/yr		17 46960724							
1089	lbs (VOC)/day		103.105195		Method Code	3				
1090	Example Calculation:									
1091	Tons (VOC)/yr	= [Bark Usage (MMBTU/yr)] x [lbs (VOC)/MMBTU (Bark)] / [2000 lbs/ton]								
1092	lbs (VOC)/day	= [VOC (tons/yr)] x [2000 lbs/ton] / [Hours of Oper. (days/yr)]								
1093										
1094	PM									
1095	Tons (PM)/yr	No 2 PB total	72.62614414	A Scrubber x ratio from single boiler testing in 1999			128 1792669	#1PB+#2PB steam rate avg		
1096	Tons (PM)/yr [A Scrubber Total #1&#2PB]		113 5779183	72 62614414	No 2 PB T PM/yr total [oil & bark]		196 6872667	#1PB+#2PB steam rate tests		
1097	Tons (PM)/yr [No 1 PB - Oil by emis factor]		8 446175718	40 95177418	No 1 PB T PM/yr by ratio from 1999 single boiler tests		0 651690722	A Scrubber production ratio: avg/test		
1098	Tons (PM)/yr [No 2 PB - Oil - by emis factor]		1 991707656	1.991707656	No. 2 PB T PM/yr oil by emis factor.		total PM Oil & bark #2PB			
1099	Tons (PM)/yr [No 2 PB - Bark]		103 140035	70 63443649	No. 2 PB lb/yr bark by difference		105 1317426	ton/yr		
1100	lbs (PM)/day		608.7299659	416 8827181	Method Code	1				
1101	Example Calculation									
1102	Tons (PM)/yr [A Scrubber]	= [Annual Avg. PM Rate from Tests (lbs/hr)] x [Hours of Oper (hrs/yr)] x [Prod Ratio] / [2000 lbs/ton]								
1103	Tons (PM)/yr	= [Tons (PM)/yr from A Scrubber] - [Tons (PM)/yr from No 1 PB (Oil fired)] - [Tons (PM)/yr from No. 2 PB (Oil Fired)]								
1104	lbs (PM)/day	= [Tons (PM)/yr from No 2 PB (Bark fired)] x [2000 lbs/ton] / [Days of Oper (days/yr)]								
1105										
1106	PM10									
1107	lbs (PM10)/MMBTU (Bark-wet)		0 5	Emission Factor from AP-42, Table 1.6-1 [7/01] = 5 lb/MMBTU Input						
1108	Tons (PM10)/yr		229 8632531	63 06646115	Using test PM & ratio of AP-42 factors [5/.56]		0 892857143			
1109	lbs (PM10)/day		1356 647303	372.2167126						
1110	Example Calculation:				Method Code	2				
1111	Tons (NOx)/yr	= [Bark Usage (MMBTU/yr)] x [lbs (PM10)/MMBTU (Bark)] / [2000 lbs/ton]								
1112	lbs (NOx)/day	= [Tons (PM10)/yr] x [2000] / [Hours of Oper. (days/yr)]								
1113										
1114	Total HAPS									
1115		Methanol								
1116		0.030173397	lb MeOH/ODUT	from all power boilers	G RWH/MACT methanol/Methanol Data Review SortII 9904 xls			Bark	Bark	Bark
1117		200948 2887	ODUBT/yr				All Bark Lb/yr	No 2 PB lb/yr	No. 3 PB lb/yr	No. 3 PB lb/yr
1118		3.03164825	T MeOH/yr	Total from all power boilers and all SCC			3774 489346	1660 646232	2113 843114	2329 164607
1119		1.887244873	T MeOH/yr	Total from bark						
1120										
1121		Acetaldehyde								
1122		0 00011	lb/MMBTU from Bark							
1123		2366986 195	MMBTU/yr from Bark							

ATTACHMENT 1

Row #												
1124		0 130184241	Ton /yr				260 3684814	114 5532277	145 8152537	145 3613123		
1125		Benzene										
1126		0.000062	lb/MMBTU from Bark	NCASI factor								
1127		2366986.195	MMBTU/yr from Bark									
1128		0 073376572	Ton /yr				146 7531441	64 5663647	82 18677937	81 93092147		
1129		Acrolein										
1130		0 000012	lb/MMBTU from Bark									
1131		2366986.195	MMBTU/yr from Bark									
1132		0.014201917	Ton /yr				28.40383434	12.49671575	15.90711859	15.8575977		
1133		Arsenic		No. 3 PB Bark 12/18/02	0 00028	lb As/hr						
1134		0 0000089	lb/MMBTU from Bark		2 2772036	lb/yr						
1135		2366986.195	MMBTU/yr from Bark									
1136		0 010533089	Ton /yr				21 06617713	9 268397513	11 79777962	2 2772036		
1137		Cumene										
1138		0 0000063	lb/MMBTU from Bark									
1139		2366986 195	MMBTU/yr from Bark									
1140		0 007456007	Ton /yr				14.91201303	6 560775768	8 351237259	8 325238794		
1141		Barium Compounds		No. 3 PB Bark 12/18/02	0 00681	lb Ba/hr						
1142		0.00032	lb/MMBTU from Bark		55 3848447	lb Ba/yr						
1143		2366986.195	MMBTU/yr from Bark		94 19466288	lb BaSO4/yr						
1144		0 378717791	Ton /yr				757 4355823	333.2457533	424 189829	94 19466288		
1145		Carbon Tetrachloride										
1146		0 0000068	lb/MMBTU from Bark									
1147		2366986 195	MMBTU/yr from Bark									
1148		0 008047753	Ton /yr				16 09550612	7 081472258	9 014033867	8 985972032		
1149		Carbon Disulfide										
1150		0.00013	lb/MMBTU from Bark									
1151		2366986.195	MMBTU/yr from Bark									
1152		0 153854103	Ton /yr				307.7082053	135.3810873	172.327118	171.7906418		
1153		Chromium Comp.		No. 3 PB Bark 12/18/02	lb Cr/hr	0 00178						
1154		0.0000096	lb/MMBTU from Bark	1 87	ppm in wet bark-NCASI lbCr/yr	14.4765086						
1155		2366986 195	MMBTU/yr from Bark	473 3972389	MM lb/yr wet bark lb CrSO4/yr	41.20237063						
1156		0 011361534	Ton /yr	0 442626418	Ton /yr		22.72306747	9 997372599	12.72569487	41 20237063		
1157		Cobalt Comp		No. 3 PB Bark 12/18/02	0 0061	lb Co/hr						
1158		0.62	ppm in wet bark - NCASI		49.610507	lb Co/yr						
1159		473.3972389	MM lb/yr wet bark		130 3326879	lb CoSO4/yr						
1160		0 146753144	Ton /yr				293 5062881	129 1327294	164 3735587	130 3326879		
1161		Copper Comp.		No 3 PB Bark 12/18/02	lb Cu/hr	0.00927						
1162		0.000034	lb/MMBTU from Bark	3.64	ppm in wet bark-NCASI lbCu/yr	75 3917049						
1163		2366986.195	MMBTU/yr from Bark	473 3972389	MM lb/yr wet bark lb CuSO4/yr	189 3697155						
1164		0 040238765	Ton /yr	0.861582975	Ton /yr		80 47753062	35.40736129	45 07016933	189 3697155		
1165		Dichloromethane										
1166		0.00093	lb/MMBTU from Bark									
1167		2366986.195	MMBTU/yr from Bark									
1168		1.100648581	Ton /yr				2201 297161	968 4954705	1232 801691	1228 963822		
1169		n-Hexane										
1170		0 00055	lb/MMBTU from Bark									
1171		2366986.195	MMBTU/yr from Bark									
1172		0 650921204	Ton /yr				1301 842407	572.7661385	729 0762686	726.8065614		
1173		Methyl Isobutyl Ketone										
1174		0 00021	lb/MMBTU from Bark									
1175		2366986 195	MMBTU/yr from Bark									
1176		0.24853355	Ton /yr				497.0671009	218 6925256	278.3745753	277.5079598		
1177		Lead Compounds		No. 3 PB Bark 12/18/02	lb Pb/hr	0 005						
1178		0.0000028	lb/MMBTU from Bark	4 8	ppm in wet bark-NCASI lbPb/yr	40 66435						
1179		2366986.195	MMBTU/yr from Bark	473 3972389	MM lb/yr wet bark lb PbSO4/yr	59 52317899						
1180		0 003313781	Ton /yr	1 136153373	Ton /yr		6 627561345	2 915900341	3 711661004	59 52317899		
1181		Manganese Comp		No. 3 PB Bark 12/18/02	lb Mn/hr	0.0146						
1182		0 00075	lb/MMBTU from Bark	60.6	ppm in wet bark-NCASI lbMn/yr	118.739902						
1183		2366986.195	MMBTU/yr from Bark	473.3972389	MM lb/yr wet bark lb MnSO4/yr	325.9950037						
1184		0 887619823	Ton /yr	14.34393634	Ton /yr		1775 239646	781 0447343	994.1949118	325.9950037		
1185		Mercury Comp.		No. 3 PB Bark 12/18/02	lb Hg/hr	0.00014						
1186		0 04	ppm in wet bark - NC	0 04	ppm in wet bark-NCASI lbHg/yr	1 1386018						
1187		493 1496814	MM lb/yr wet bark	473 3972389	MM lb/yr wet bark lb HgSO4/yr	1 683495981						
1188		0.009862994	Ton /yr	0 009467945	Ton /yr		19.72598726	8 6787598	11.04722746	1.683495981		
1189		Napthalene										
1190		0 00012	lb/MMBTU from Bark									
1191		2366986.195	MMBTU/yr from Bark									
1192		0.142019172	Ton /yr				284.0383434	124 9671575	159 0711859	158.575977		
1193		Nickel Comp.		No. 3 PB Bark 12/18/02	lb Ni/hr	0 00267						
1194		0.000016	lb/MMBTU from Bark	3.25	ppm in wet bark-NCASI lbNi/yr	21.7147629						
1195		2366986.195	MMBTU/yr from Bark	473 3972389	MM lb/yr wet bark lb NiSO4/yr	57 04725847						
1196		0.01893589	Ton /yr	0.769270513	Ton /yr		37.87177912	16 66228766	21 20949145	57 04725847		

ATTACHMENT 1

Row #										
1197		Phenol								
1198		0 0000021	lb/MMBTU from Bark							
1199		2366986 195	MMBTU/yr from Bark							
1200		0 002485336	Ton /yr				4 970671009	2.186925256	2 783745753	2 775079598
1201		Selenium Comp		No 3 PB Bark 12/18/02	0 00086	lb Se/hr				
1202		0 21	ppm in wet bark - NCASI		6 9942682	lb Se/yr				
1203		473 3972389	MM lb/yr wet bark		15 49363209	lb SeSO4/yr				
1204		0 04970671	Ton /yr				99 41342018	43.73850512	55 67491506	15 49363209
1205		Silver		No 3 PB Bark 12/18/02	0.00024	lb Ag/hr				
1206		0 15	ppm in wet bark - NCASI		1.9518888	lb Ag/yr				
1207		473 3972389	MM lb/yr wet bark		3 686901067	lb AgSO4/yr				
1208		0 035504793	Ton /yr				71.00958584	31 24178937	39 76779647	3 686901067
1209		Toluene								
1210		0 00001	lb/MMBTU from Bark							
1211		2366986 195	MMBTU/yr from Bark							
1212		0 011834931	Ton /yr				23 66986195	10 41392979	13 25593216	13 21466475
1213		1,1,1-Trichloroethane								
1214		0 0000012	lb/MMBTU from Bark							
1215		2366986 195	MMBTU/yr from Bark							
1216		0 001420192	Ton /yr				2 840383434	1.249671575	1 590711859	1 58575977
1217		1,1,2-Trichloroethane								
1218		0 0000028	lb/MMBTU from Bark							
1219		2366986 195	MMBTU/yr from Bark							
1220		0 003313781	Ton /yr				6 627561345	2 915900341	3 711661004	3 700106131
1221		Xylene								
1222		0.0000013	lb/MMBTU from Bark							
1223		2366986 195	MMBTU/yr from Bark							
1224		0 001538541	Ton /yr				3.077082053	1.353810873	1 72327118	1 717906418
1225		Zinc Comp		No. 3 PB Bark 12/18/02	lb Zn/hr	0 11065				
1226		0 00031	lb/MMBTU from Bark	10	ppm in wet bark-NCASI lbZn/yr	899 9020655				
1227		2366986 195	MMBTU/yr from Bark	473 3972389	MM lb/yr wet bark lb ZnSO4/yr	2228 988193				
1228		0 36688286	Ton /yr	2 366986195	Ton /yr		733 7657204	322.8318235	410 9338969	2228 988193
1229		PCBs								
1230										
1231										
1232							0	0	0	0
1233		Formaldehyde								
1234		0 0141	lb CHOH/hr	Stack test 1991 by ESE for A scrubber - double for both scrubbers						
1235		8132.87	hr/yr							
1236		0 114673467	Ton /yr				229 346934	100 9048077	128 4421263	136 674048
1237		Chloroform								
1238		0 0675	lb CHCl3/hr	Stack test 1991 by ESE for A scrubber - double for both scrubbers						
1239		8132 87	hr/yr							
1240		0 548968725	Ton /yr				1097 93745	483 0549305	614 8825195	654 2906554
1241		Total HAPS								
1242		7 060153916	Ton/yr	14120 30783		14120 30783	14120 30783	6212 452557	7907 855275	9117 023135
1243							25000	10000	lb/yr	with 2002 tests
1244	Total HAPS						total	individual		
1245	Below Threshold	3 106226279	Ton HAPS/yr from No. 2 PB on bark							
1246		18 33287159	lb/day total HAPS							
1247										
1248	Methanol									
1249	Below Threshold	0 830323116	Ton MeOH/yr from No 2 PB on bark		No 2 PB Bark MeOH/VOC =	0 047529581				
1250		4 900546739	lb/day MeOH							
1251										
1252	**EU ID 003**	**No. 3 Power Boiler - Oil Fired**								
1253										
1254	CO									
1255	lbs (CO)/1000 gal (Fuel Oil)		5	Emission Factor from AP-42, Table 1 3-1[9/98]						
1256	Tons (CO)/yr		4 818961619							
1257	lbs (CO)/day		28.27510576		Method Code	3				
1258	Example Calculation									
1259	Tons (CO)/yr	= [Fuel Oil Usage (1000 gal/yr)] x [lbs (CO)/1000 gal (Fuel Oil)] / [2000 lbs/ton]								
1260	lbs (CO)/day	= [Ozone Rate (1000 gal/day)] x [lbs (CO)/1000 gal (Fuel Oil)]								
1261										
1262	NOx									
1263	lbs (NOx)/1000 gal (Fuel Oil)		47	Emission Factor from AP-42, Table 1 3-1[9/98]						
1264	Tons (NOx)/yr		45.29823922							
1265	lbs (NOx)/day		265.7859942		Method Code	3				
1266	Example Calculation									
1267	Tons (NOx)/yr	= [Fuel Oil Usage (1000 gal/yr)] x [lbs (NOx)/1000 gal (Fuel Oil)] / [2000 lbs/ton]								
1268	lbs (NOx)/day	= [Ozone Rate (1000 gal/day)] x [lbs (NOx)/1000 gal (Fuel Oil)]								
1269										

Row #

ATTACHMENT 1

Row #												
1270	Lead											
1271	lbs (Pb)/hr [B scrubber - No 3 PB]		0 07	Average from 06-14-95 Stack Test Data.								
1272	Tons (Pb)/yr [B scrubber - No 3 PB]		0 2863245									
1273	lbs (Pb)/day		1.68		Method Code	2						
1274	Example Calculation											
1275	Tons (Pb)/yr [B scrubber - No 3 PB]		= [lbs (Pb)/hr from B scrubber] x [Hours of Oper (hrs/yr)] / [2000 lbs/ton]									
1276	lbs (Pb)/day		= [Tons (Pb)/yr] x [2000 lbs/ton] / [Days of Operation (days/yr)]									
1277												
1278	SO2											
1279	B scrubber efficiency for SO2 (%)		0.9		B Scrubber Average pH=	7 4	Env - 3K - Air Report - Power Boilers					
1280	Density of Oil (lbs/gal)		8									
1281	Tons (SO2)/yr		23 0860388									
1282	lbs (SO2)/day		135 4566067		Method Code	2						
1283												
1284	Example Calculation.											
1285	Tons (SO2)/yr	= [Oil Usage(1000 gal/yr)] x Density of Oil(lb/gal) x [%S/100] x [MW(SO2)/MW(S)] x [1 - B scrub eff SO2(%)] / [2000 lbs/ton]										
1286	lbs (SO2)/day	= [Ozone Rate (1000 gal/day)] x Density of Oil (lbs/gal) x [%S / 100] x [MW (SO2) /MW (S)] x [1 - B scrubber eff SO2 (%)]										
1287												
1288	VOC											
1289	lbs (VOC)/1000 gal (Fuel Oil)		0 76	Emission Factor from AP-42, Table 1.3-3 [9/98].								
1290	Tons (VOC)/yr		0.732482166									
1291	lbs (VOC)/day		4 297816076		Method Code	3						
1292	Example Calculation											
1293	Tons (VOC)/yr	= [Oil Usage (1000 gal/yr)] x [lbs (VOC)/1000 gal (Fuel Oil)] / [2000 lbs/ton]										
1294	lbs (VOC)/day	= [Ozone Rate (1000 gal/day)] x [lbs (VOC)/1000 gal (Fuel Oil)]										
1295												
1296	PM											
1297	lbs (PM)/1000 gal (Fuel Oil)		16 97819583	Emission Factor from AP-42, Table 1 3-1 [9/98].		[(9 19) S + 3 22)]						
1298	Sulfur Content (% by weight)		1 497083333		Table 1 3-5 [9/98]	8 34[1.12S + .37] = 9 34S + 3 09						
1299	B scrubber efficiency for PM (%)		0 8									
1300	Tons (PM)/yr		3.272690963									
1301	lbs (PM)/day		26 88337584		Method Code	3						
1302	Example Calculation											
1303	Tons (PM)/yr	= [Oil Usage (1000 gal/yr)] x [lbs (PM)/1000 gal (Oil)] x [1 - B scrubber eff PM] / [2000 lbs/ton]										
1304	lbs (PM)/day	= [Ozone Rate (1000 gal/day)] x [lbs (PM)/1000 gal (Oil)] x [1 - B scrubber eff PM]										
1305												
1306	PM10											
1307	lbs (PM10)/1000 gal (Fuel Oil)		14 675078	Emission Factor from AP-42, Table 1 3-5		[7 17 x (1.12 S + 37)]						
1308	Sulfur Content (% by weight)		1.497083333									
1309	Tons (PM10)/yr		2.828745506									
1310	lbs (PM10)/day		16 5975753		Method Code	3						
1311	Example Calculation:											
1312	Tons (PM10)/yr	= [Oil Usage (1000 gal/yr)] x [lbs (PM10)/1000 gal (Oil)] x [1 - B scrubber eff PM] / [2000 lbs/ton]										
1313	lbs (PM10)/day	= [Ozone Rate (1000 gal/day)] x [lbs (PM10)/1000 gal (Oil)] x [1 - B scrubber eff PM]										
1314												
1315	Total HAPS											
1316	Below Threshold	0 5326898	Ton Total HAPS/yr from No 3 PB on oil									
1317		3 125540648	lb/day Total HAPS									
1318												
1319												
1320	Methanol		0 273166726	Ton MeOH/yr from No. 3 PB on oil								
1321	Below Threshold		1.602797173	lb/day MeOH								
1322												
1323					No 3 PB Oil MeOH/VOC =	0 372932937						
1324												
1325												
1326	**EU ID 003**	**No. 3 Power Boiler - Bark Fired**										
1327												
1328	CO											
1329	lbs (CO)/MMBTU Input(Bark-wet)		0 6	Emission Factor from AP-42, Table 1 6-2 [7/01] = 0 6 lb/MMBTU heat input			133 2333333	ppmV CO 2004	385	dscf/mole		
1330	Tons (CO)/yr		351.1126059	Steam meter bark burned basis			92886 8	dscf/m flue gas	28	lb CO/mole CO		
1331	lbs (CO)/day		2060 142174		Method Code	3	12 37561799	dscf/min CO	54 00269667	lb CO/hr	minus No 3 PB oil CO	
1332	Example Calculation:								220 8899303	T CO/yr	216.07097	
1333	Tons (CO)/yr	= [Bark Usage (MMBTU/yr)] x [lbs (CO)/MMBTU (Bark)] / [2000 lbs/ton]							1296.06472	lb CO/day	1267 7896	
1334	lbs (CO)/day	= [CO (tons/yr)] x [2000 lb/ton] / [Hours of Oper (days/yr)]										
1335												
1336	NOx											
1337	lbs (NOx)/MMBTU Input (Bark)		0 22	Emission Factor from AP-42, Table 1.6-2 [7/01]. = 22 lb/MMBTU Heat Input			total NOX Oil & bark #2PB					
1338	Tons (NOx)/yr		128 7412888				174 0395281	ton/yr				
1339	lbs (NOx)/day		755 3854639		Method Code	3	B Scrubber					
1340	Example Calculation:						59 86666667	ppmV NOX 2004	385	dscf/mole		
1341	Tons (NOx)/yr	= [Bark Usage (MMBTU/yr)] x [lbs (NOx)/MMBTU (Bark)] / [2000 lbs/ton]					92886 8	dscf/m flue gas	46	lb NO2/mole NO2		
1342	lbs (NOx)/day	= [NOX (tons/yr)] x [2000 lbs /ton] / [Hours of Oper. (days/yr)]					5.560823093	dscf/min NOX	39 86460192	lb NOX/hr	minus No. 3 PB oil NOX	

ATTACHMENT 1

Row #												
1343									163 0601744	T NOX/yr	117 76194	
1344	Lead								956 750446	lb NOX/day	690 96445	
1345	lbs (Pb)/MMBTU Input (Bar	2002 Stack Test lb/yr	40 66435	0 000048	Emission Factor from AP-42, Table 1.6-2 [7/01] = 000048 lb/MMBTU Heat Input							
1346	Tons (Pb)/yr		0 020332175	0 028069008	Method Code	2			Total NOX PB	T NOX/yr	386 98667	
1347	lbs (Pb)/day		0 119298397	0 164811374								
1348	Example Calculation.											
1349	Tons (Pb)/yr	= [Bark Usage (MMBTU/yr)] x [lbs (Pb)/MMBTU (Bark)] / [2000 lbs/ton]										
1350	lbs (Pb)/day	= [Pb (tons/yr)] x [2000 lbs /ton] / [Hours of Oper (days/yr)]										
1351												
1352	SO2											
1353	lbs (SO2)/MMBTU(Bark)		0 025	Emission Factor from AP-42, Table 1 6-2 [7/01] = 025 lb/MMBTU			total SO2 Oil & bark #2PB					
1354	A scrubber efficiency for SO2 (%)		0 9				24 54900799	ton/yr				
1355	Tons (SO2)/yr		1 462969191									
1356	lbs (SO2)/day		8 583925726		Method Code	3						
1357	Example Calculation											
1358	Tons (SO2)/yr	= [Bark Usage (MMBTU/yr)] x [lbs (SO2)/MMBTU (Bark)] x [1-Eff] / [2000 lbs/ton]										
1359	lbs (SO2)/day	= [SO2(tons/yr)] x [lbs (SO2)/ton (Bark)] / [Hours of Oper (days/yr)]										
1360												
1361	VOC											
1362	lbs (VOC)/MMBTU (Bark)		0 038	Emission Factor from AP-42, Table 1 6-3 [7/01] = 038 lb/MMBTU								
1363	Tons (VOC)/yr		22 23713171									
1364	lbs (VOC)/day		130 475671		Method Code	3						
1365	Example Calculation											
1366	Tons (VOC)/yr	= [Bark Usage (MMBTU/yr)] x [lbs (VOC)/MMBTU (Bark)] / [2000 lbs/ton]										
1367	lbs (VOC)/day	= [VOC (tons/yr)] x [2000 lbs/ton] / [Hours of Oper (days/yr)]										
1368												
1369	PM											
1370	lbs (PM)/hr [No 3 PB = B Scrubber]		34 32666667	Average from Stack Test Data.		120 8323333	stack test steam rate					
1371	Tons (PM)/yr [No 3 PB = B Scrubber]		106 7160033	ton/yr total PM Oil & bark #2PB		91 83761781	annual average steam rate					
1372	Tons (PM)/yr [No 3 PB - Oil]		3 272690963			0 760041748	production ratio average/test					
1373	Tons (PM)/yr [No. 3 PB - Bark]		103 4433123									
1374	lbs (PM)/day		606 9503821		Method Code	1						
1375	Example Calculation:											
1376	Tons (PM)/yr [B Scrubber]		= [Annual Avg PM Rate from Tests (lbs/hr)] x [Hours of Oper (hrs/yr)] x [production ratio] / [2000 lbs/ton]									
1377	Tons (PM)/yr [No. 3 PB (Bark fired)]		= [Tons (PM)/yr from B Scrubber] - [Tons (PM)/yr from No 3 PB (Oil Fired)]									
1378	lbs (PM)/day		= [Tons (PM)/yr from No 3 PB (Bark fired)] x [2000 lbs/ton] / [Days of Oper (days/yr)]									
1379												
1380	PM10											
1381	lbs (PM10)/MMBTU (Bark-wet)		0 5	Emission Factor from AP-42, Table 1 6-1 [7/01] = .5 lb/MMBTU Input								
1382	Tons (PM10)/yr		292 5938383	92 36010028	Using test PM & ratio of AP-42 factors [5/.56]		0 892857143					
1383	lbs (PM10)/day		1716 785145	541 919984								
1384	Example Calculation				Method Code	2						
1385	Tons (NOx)/yr	= [Bark Usage (MMBTU/yr)] x [lbs (PM10)/MMBTU (Bark)] / [2000 lbs/ton]										
1386	lbs (NOx)/day	= [Tons (PM10)/yr] x [2000] / [Hours of Oper. (days/yr)]										
1387												
1388												
1389	Total HAPS											
1390	Below Threshold	4 558511567	Ton HAPS/yr from No 3 PB on bark									
1391		26 74692328	lb/day total HAPS									
1392												
1393												
1394	Methanol											
1395	Below Threshold	1 056921557	Ton MeOH/yr from No 3 PB on bark		No. 3 PB Bark MeOH/VOC =	0 047529581						
1396		6 201454001	lb/day MeOH									
1397												
1398												
1399												

ATTACHMENT 1

Row #									
1400	**2004 Production vs Power Boiler Emissions Calculations**								
1401	**Total Power Boilers**								
1402	Average Electrical:	5 2	megawatt/day						
1403		27	klb steam/hr-megawatt						
1404		140	klb steam/hr						
1405	Average Total Steam Prod	220	klb steam/hr						
1406	Average PB to Mill	80	klb steam/hr						
1407	Average % PB Steam to mill	36%							
1408			2004	1996	2003	2004	Present PSD Limit	Proposed PSD Limit	**Proposed PSD Limit**
1409		ADMT/yr:	145,883	149,957	144,976	145,883	153,205	175,000	**Change to 1996**
1410	**Table 7 Data**	2004 TPY	lb/ADMT	TPY	TPY	TPY	TPY	TPY	TPY
1411	PM	220 29	1.09	82	79	80	84	96	14
1412	PM10	195 37	0 97	73	70	71	74	85	12
1413	SO2	99.33	0.49	37	36	36	38	43	6
1414	NOx	298 8	1 48	111	107	108	114	130	19
1415	CO	647.14	3 21	241	233	234	246	281	40
1416	VOC	42.78	0 21	16	15	15	16	19	3