FLORIDA DEPARTMENT OF HEALTH & REHABILITATIVE SERVICES

Working in partnership with local communities to help people be self-sufficient, experience good health and live in stable families and communities.

October 28, 1996
(Faxed)

Willard Hanks, Air Permit Engineer
New Source Review Section
Bureau of Air Regulation
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400
(904) 922-6979

Re: Comments on Proposed Trial Burn
Cogeneration Power Plants - Tire Derived Fuel (TDF)
Okeelanta Power Ltd. and Osceola Power Ltd.

Dear Mr. Hanks:

The Department is considering a proposal to test burn tire derived fuels (TDF) at these facilities. The Health Department believes this is reasonable and would provide information needed to make a final determination on these applications. We request the following conditions be considered in the Department's approval for a trial burn:

(1) Trial Burn Window: The trial burn is approved for a period of (60) consecutive calendar days from the initial burning of TDF.

(2) Notification: The facility shall notify the Health Department at least (1) day prior to the initial burning of TDF. The facility shall notify the Health Department at least (15) days prior to conducting any requested stack testing.

(3) Continuous Monitoring Requirements: During the entire trial burn period, the facility shall continuously monitor and record the SO_2, NOx, and CO concentrations, the opacity, and the heat input rates from each operating boiler with the certified monitors required by permit. In addition, the facilities shall continuously monitor and record the TDF, biomass, bagasse, and fuel oil feed rates during the entire test burn period.

(4) Requested Stack Testing:

(a) *Hydrochloric Acid Emissions*: At least one boiler at each facility shall stack test for HCl emissions during the test burn period.
- Test Method shall be EPA Method 26 or 26A.
- Test shall consist of a minimum of (3), one-hour runs while burning at least 90% of the requested maximum TDF feed rate.
- Emissions shall be reported in pounds of HCl per hour.

(b) *Dioxin/Furan Emissions*: At least one boiler at each facility shall stack test for dioxin/furan emissions during the test burn period.
- Test Method shall be EPA Method 23.
- Test shall consist of a minimum of (3), four-hour runs while burning at least 90% of the requested maximum TDF feed rate.

DISTRICT IX
PALM BEACH COUNTY PUBLIC HEALTH UNIT - P.O. BOX 29 - WEST PALM BEACH, FL 33402
LAWTON CHILES, GOVERNOR

- Emissions shall be reported in ng/dscm for total mass dioxins/furans AND ng/dscm for the 2,3,7,8-tetrachlorinated dibenzo-p-dioxin toxic equivalents based on the 1989 international toxic equivalency factors.
- The activated carbon feed rate (in pounds per hour) shall be monitored and recorded at least at (15) minute intervals during each test run.

(5) Test Burn Reports: Within (60) days of completion of the test burn period, the facilities shall provide the DEP and the Health Department with a report, including:

- A summary of the over all project including a description of the equipment used to handle, transfer, and burn TDF.
- Any changes in boiler operations required to accommodate TDF.
- Any problems identified during the trial burn period.
- A summary of the emissions of SO_2, NOx, CO, the opacity, the heat input rates, and the fuel feed rates as determined from the continuous monitoring records.
- A summary of the emissions of HCl and dioxins/furans, including a comparison of the measured results with the predicted emissions.
- A comparison of the measured dioxin/furan results with the new emission guidelines for municipal waste combustors.
- A summary of the compliance status with regard to the current permit limits.

If you have any questions on these comments, please contact me at the numbers below.

Sincerely,

For the Division Director
Environmental Health and Engineering

Jeffery J. Koerner

Jeffery F. Koerner, Air Permit Engineer
Air Pollution Control Section
Phone: (407) 355-4549 *Suncom: 273-4549*
FAX: (407) 355-2442

Filename: COGEN_3.CMT

CC: SD
EPA
NPS
S. Arif
W. Hanks
K. Anderson

KBN
A GOLDER ASSOCIATES COMPANY

October 8, 1996

Mr. Al Linero, P.E.
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 33493

Re: Okeelanta Power Limited Partnership
Tire-Derived Fuel Permit Amendment
Facility ID No. 0990332
Permit File No. AC50-219413; PSD-FL-196A

Dear Mr. Linero:

KBN Engineering and Applied Sciences, Inc. (KBN) has prepared the following responses to your August 16th request for additional information concerning the request to utilize tire-derived fuel at the Okeelanta Power Limited Partnership (OkPLP) cogeneration facility.

1. Compliance testing was performed on the cogeneration boilers at the OkPLP facility during the month of May 1996. Attached are summaries that detail the results of the compliance tests for each boiler. Except for a few deviations, all permitted emission limits were met. The deviations were as follows:

   Boiler A
   Sulfur Dioxide - OkPLP's contractor inadvertently listed Method 8 instead of Method 6 in the Protocol for Compliance Testing. Method 8 and Method 6 use identical analytical methods, however, Method 8 uses an isokinetic multi transverse sampling procedure versus the single sample point for Method 6 and is in reality more representative of actual flue gas conditions. Method 8 results were submitted to demonstrate compliance with permit conditions for all three boilers. OkPLP retested Boiler A in August using Method 6 and the results, 0.056 lb/MMBtu and 28.4 lb/hr, are in compliance with permit conditions. Boilers B and C will be re-tested at the next semi-annual stack testing event.

   Sulfuric acid mist - EPA Method 8 showed emissions in excess of the permitted limit; however, the method is believed to be biased high primarily due to the combination of SO_2 and moisture in the flue gases. Therefore, a modified EPA Method 8 was performed, which resulted in emissions well within the permitted limit. OkPLP has requested that the modified method be approved as an alternate sampling procedure.

   Mercury - mercury emissions were higher than permitted; however, the carbon injection system for mercury control was set at the lowest carbon injection rate. Recently, OkPLP relocated the carbon injection points in each boiler upstream to the air preheat outlets in order to maximize the carbon residence time in the flue gas. On August 20 and 21, 1996, Boiler A was retested for mercury emissions. The carbon injection rates were adjusted to 100% and 50% capacity for each three series of tests. At 100% carbon injection rate, mercury emissions were an average of 2.44E-07 lb/MMBtu and 1.23E-04 lb/hr. At 50% carbon injection rate, mercury emissions were an average of 1.32E-07 lb/MMBtu and 4.66E-05 lb/hr. Even at 50% carbon injection, these emission rates are within the permitted mercury limits. Boilers B and C will be retested during the next semi-annual stack test event.

6241 Northwest 23rd Street, Suite 500, Gainesville, Florida 32653-1500, 352-336-5600 FAX 352-336-6603
5405 West Cypress Street, Suite 215, Tampa, Florida 33607, 813-287-1717 FAX 813-287-1716
1801 Clint Moore Road, Suite 105, Boca Raton, Florida 33487, 407-994-9910 FAX 407-994-9393
7785 Baymeadows Way, Suite 105, Jacksonville, Florida 32256, 904-739-5600 FAX 904-739-7777
1616 'P' Street NW, Suite 350, Washington, DC 20036, 202-462-1100 FAX 202-462-2270

Boiler B

Sulfur Dioxide - Boiler B will be retested using Method 6 during the next semi-annual stack testing event.

Sulfuric acid mist - same situation as described for Boiler A above.

Mercury - Boiler B will be retested during the next semi-annual stack testing event.

Boiler C

Nitrogen oxides - although the emission rate exceeded 0.15 lb/MMBtu (the permitted numerical limit) on this day, it was in compliance as per the 107.3 lb/hr permit limit. The lb/MMBtu value was calculated using an F-factor approximately 12% higher than the F-factor calculations for Boilers A and B. Clean Air Engineering (CAE) recalculated the fuel factor for stack C because the individual F-factor for fuel analysis no. 5 was greater than two standard deviations from the average of the eleven samples. The revised fuel factor for stack C is 9,337 dscf/MMBtu. Using the revised fuel factor, the average NO_x value for the stack test is 0.15 lb/MMBtu which is in compliance with permit conditions. In addition, permit compliance with the NO_x limit is based upon a thirty day rolling average. Therefore, the test results as originally calculated do not constitute a violation.

Sulfur Dioxide - Boiler C will be retested using Method 6 during the next semi-annual stack testing event.

Sulfuric acid mist - same situation as described for Boiler A above.

Lead - although Boiler C lead emissions were measured at just above the permitted limit of 2.5E-05 lb/MMBtu, it was in compliance as per the 0.018 lb/hr permit limit. Using the revised fuel factor, as mentioned above for Boiler C NO_x, the average lead value for the stack test is 2.7E-05 lb/MMBtu. Due to the similarity in results from runs 1 and 2, the results of run 3 may not be representative of actual stack conditions. Boiler C will be retested during the next semi-annual stack testing event. It is expected that future testing will result in compliance.

Mercury - Boiler C will be retested during the next semi-annual stack testing event.

2. In reference to the maximum tire-derived fuel (TDF) input, there is no discrepancy between the values presented in the original application and the corrected application page submittals dated July 17, 1996. The original application (Table 2-2) presented the maximum TDF input on a short-term basis as 21,935 lb/hr and 340 MMBtu/hr. Based on the remaining heat input due to wood waste fuel (375 MMBtu/hr and 68,182 lb/hr), the total weight of fuel fired is 90,117 lb/hr. Thus, TDF represents approximately 25% by weight on a short term basis (21,935 ÷ 90,117 = 24.3%). In the July 17, 1996, application corrected application pages, Table 4 presents this identical information for fuel firing on a short term basis.

   Some confusion may stem from the annual average fuel usage figures. In Table 2-2 of the original application, TDF input from all three boilers was stated to be 9.1% on a weight basis. However, Table 4 of the July 17 submittal presented annual fuel usage on a per boiler basis. Each boiler can potentially burn the total amount of TDF that all three boilers combined can burn. This is reflected in Table 4 which shows each boiler can fire up to 81,613 TPY TDF, which equates to 40.4% on a heat input basis and 19.4% on a weight basis, annual average.

For your convenience, Table 2-2 from the original application and Table 4 from the corrected application pages submittal are attached.

Presented below are responses to the letter dated August 12, 1996 from the Bureau of Solid and Hazardous Waste pertaining to air and ash issues.

1a. Wood Waste Mass Balance Analysis

Actual heavy metal concentrations in wood waste fuel delivered to OkPLP were analyzed from samples taken between January and August of 1996. From this data, a representative average heavy metal concentration was obtained and is presented in the first two columns of Tables 1.

Mass balance calculations were then performed in order to derive theoretical heavy metal concentrations in the ash so that they may be compared to actual average ash concentrations. Utilizing the actual fly ash and bottom ash heavy metal concentration data, a partitioning factor was developed in order to theoretically predict the fraction of the heavy metal that would partition to fly ash and the fraction partitioning to bottom ash (see far right hand columns of Table 1).

The results of the mass balance are presented in Table 1. As shown, the theoretical ash element concentrations, except for lead, are within $\pm 20\%$ of the actual sampled ash data. The theoretical lead ash concentrations are within about 35% of the actual measured concentrations, with the actual average ash concentrations being higher than the theoretical value. Some metals that were in the ash were not sampled in the wood waste, therefore no mass balance comparison could be made for these compounds.

1b. Fly and Bottom Ash Mass Balance Analysis

Actual heavy metal concentrations in fly ash and bottom ash were analyzed from samples taken between November 1995 and July 1996. From this data, a representative average heavy metal concentration in the ash was obtained and is presented in the first two columns of Tables 2. Mass balance calculations were then performed in order to derive theoretical heavy metal concentrations in the wood waste so that they may be compared to actual average wood waste concentrations. The results are shown in the last two columns of Table 2. As shown, the theoretical arsenic, chromium and mercury concentrations in the wood waste are in close agreement with the actual measured values. However, larger differences are shown for lead.

Additional metals were sampled in the ash than were sampled in the wood waste, therefore actual barium, cadmium, copper, selenium and silver concentrations could not be compared to theoretical wood waste concentrations.

1c. Heavy Metals Concentration Analysis summary

With the exception of lead, it has been shown that using actual wood waste heavy metal concentrations to back calculate through mass balance to theoretical ash heavy metal concentrations yields close approximations to actual ash heavy metal concentrations. Therefore, using mass balance calculations is a valid method to estimate concentrations of heavy metals in the ash from wood waste combustion.

Actual lead concentrations in the ash were shown to be higher than those based on mass balance calculations. The reason for this is not known. Therefore, further analysis of the lead content of fuel and ash may be warranted.

2. Comparison of Calculated Arsenic Concentration in Wood Waste to <3% CCA Treated Wood
Table 2-11 from the May 2, 1996 Okeelanta TDF submittal showed that the <3% CCA treated wood fuel mixture by volume would contain 70.7 ppm (wet basis) of arsenic (the table is attached for reference). Concentrations of arsenic in wood waste fuel based on actual analysis and mass balance calculations are approximately 21 ppm (wet basis). This demonstrates that Okeelanta is receiving less than 1.0% (wet basis) CCA treated wood in its deliveries of wood waste fuel. Ideally, no CCA treated wood should be mixed with the wood waste fuel, however, it is recognized that some CCA treated wood still ends up in the supplied fuel mix. Okeelanta's random fuel samplings show that the facility is burning considerably less CCA treated wood than they are permitted to burn.

3. Anticipated Heavy Metal Concentrations in Combined TDF/Wood Waste Fuel and Ash
The theoretical combined fuel analysis concentration is presented in column three of Table 3. These values are based on as-fired short term fuel usage of 75% wood waste and 25% TDF on a weight basis. Theoretical combined fuel ash concentrations are presented in the remainder of Table 3. Actual partitioning factors from Table 1 were used to predict theoretical combined fuel fly ash and bottom ash concentrations.

4. Additional Air Permit Information Requested by The Bureau
Copies of specific conditions 12 and 19 from permit number AC50-219413 pertaining to fuel receiving, handling, storage and sampling requirements are attached.

If you have any questions or need for other information than that given here, please let me know.

Sincerely,

David A. Buff

David A. Buff
Professional Engineer
Florida P.E. #19011

SEAL

DB/vjp
Attachments

cc: James Meriwether, OkPLP
Bill Tarr, Flo-Sun, Inc.
Paul Wesson, KBN
File (2)
CC: D. Knowles, SD
J. Koerner, PBCo.
K. Anderson, DEP
B. Beals, EPA
J. Bunyak, NPS
S. Arif, BAR

PROJECT OVERVIEW

The testing was conducted on Stack A from May 9 through May 30, 1996. Coordinating the field testing were:

J. Prosser - Bechtel Power Corporation
J. Meriwether - Okeelanta Power L.P.
F. Sittig - Florida Department of Environmental Protection
D. Brown - HRS, Palm Beach County
D. Dreska - Clean Air Engineering

Table 1-1 contains a summary of the test program. More detailed test conditions and results of analysis are presented in Tables 2-1 through 2-15 on pages 2-1 through 2-15.

Table 1-1:
Summary of Test Results

Source Constituent	Sampling Method	Average Emission	Permit Limit[a]
Stack A			
Particulate (lb/hr)	EPA M5	5.63	21.5
Particulate (lb/10^6Btu)	EPA M5	0.0084	0.03
PM_{10} (lb/hr)	EPA M201A	4.09	21.5
PM_{10} (lb/10^6Btu)	EPA M201A	0.0058	0.03
Nitrogen Oxides (lb/hr)	EPA M7E	94.06	107.3
Nitrogen Oxides (lb/10^6Btu)	EPA M7E	0.138	0.15
Sulfur Dioxide (lb/hr)[b]	EPA M8	45.4	71.5
Sulfur Dioxide (lb/10^6Btu)[b]	EPA M8	0.063	0.10
Sulfuric Acid Mist (lb/hr)	EPA M8[c]	77.1	2.15
Sulfuric Acid Mist (lb/10^6Btu)	EPA M8[c]	1.0E-1	3.0E-3
Sulfuric Acid Mist (lb/hr)	EPA M8 (mod)[c]	0.767	2.15
Sulfuric Acid Mist (lb/10^6Btu)	EPA M8 (mod)[c]	1.1E-3	3.0E-3
Visible Emissions (%) (6-min. avg.)	EPA M9	15	20
Carbon Monoxide (lb/hr)	EPA M10	131.96	250.3
Carbon Monoxide (lb/10^6Btu)	EPA M10	0.191	0.35
Inorganic Lead (lb/hr)	EPA M12	0.0174	0.018
Inorganic Lead (lb/10^6Btu)	EPA M12	2.43E-5	2.5E-5
Total Fluorides (lb/hr)	EPA M13B	< 2.17E-2	NA[d]
Total Fluorides (lb/10^6Btu)	EPA M13B	< 2.97E-5	NA[d]

(Table Continued on Next Page)

PROJECT OVERVIEW

Table 1-1:
Summary of Test Results (Continued)

TNMHC (lb/hr)[c]	EPA M25	28.8	42.9
TNMHC (lb/10^6Btu)[c]	EPA M25	0.037	0.06
THC (lb/hr)[e]	EPA M25A	0.534	42.9
THC (lb/10^6Btu)[e]	EPA M25A	0.00069	0.06
TNMHC (lb/hr)[f]	EPA M18/25A	0.158	42.9
TNMHC (lb/10^6Btu)[f]	EPA M18/25A	0.00021	0.06
Mercury (lb/hr)	EPA M101A	6.7E-4	2.1E-4[g]
Mercury (lb/10^6Btu)	EPA M101A	9.6E-7	2.9E-7[g]
Beryllium (lb/hr)	EPA M104	< 2.55E-6	NA[d]
Beryllium (lb/10^6Btu)	EPA M104	< 3.28E-9	NA[d]
Arsenic (lb/hr)	EPA M108	5.41E-3	NA[d]
Arsenic (lb/10^6Btu)	EPA M108	7.56E-6	NA[d]
Chromium (lb/hr)	CTM 012	3.61E-3	NA[d]
Chromium (lb/10^6Btu)	CTM 012	4.53E-5	NA[d]
Copper (lb/hr)	CTM 012	8.78E-2	NA[d]
Copper (lb/10^6Btu)	CTM 012	1.10E-5	NA[d]

[a] Permit limits obtained from Okeelanta Power L.P. permit number: AC50-219413 PSD-FL-196.
[b] Average of first three EPA Method 8 runs which were performed.
[c] See Discussion on page 1-3.
[d] Not-Applicable-no permit limit listed.
[e] Methane fraction included in results.
[f] Methane fraction subtracted from results.
[g] Emission limit for wood waste.

PROJECT OVERVIEW

The testing was conducted on Stack B from May 14 through May 31, 1996. Coordinating the field testing were:

J. Prosser - Bechtel Power Corporation
J. Meriwether - Okeelanta Power L.P.
F. Sittig - Florida Department of Environmental Protection
D. Brown - HRS, Palm Beach County
D. Dreska - Clean Air Engineering

Table 1-1 contains a summary of the test program. More detailed test conditions and results of analysis are presented in Tables 2-1 through 2-14 on pages 2-1 through 2-14.

Table 1-1:
Summary of Test Results

Source Constituent	Sampling Method	Average Emission	Permit Limit[a]
Stack B			
Particulate (lb/hr)	EPA M5	2.95	21.5
Particulate (lb/10^6Btu)	EPA M5	0.0039	0.03
PM_{10} (lb/hr)	EPA M201A	2.26	21.5
PM_{10} (lb/10^6Btu)	EPA M201A	0.0030	0.03
Nitrogen Oxides (lb/hr)	EPA M7E	105.1	107.3
Nitrogen Oxides (lb/10^6Btu)	EPA M7E	0.14	0.15
Sulfur Dioxide (lb/hr)[b]	EPA M8	57.8	71.5
Sulfur Dioxide (lb/10^6Btu)[b]	EPA M8	0.080	0.10
Sulfuric Acid Mist (lb/hr)	EPA M8[c]	100.0	2.15
Sulfuric Acid Mist (lb/10^6Btu)	EPA M8[c]	1.4E-1	3.0E-3
Sulfuric Acid Mist (lb/hr)	EPA M8 (mod)[c]	0.978	2.15
Sulfuric Acid Mist (lb/10^6Btu)	EPA M8 (mod)[c]	1.4E-3	3.0E-3
Visible Emissions (%) (6-min. avg.)	EPA M9	13	20
Carbon Monoxide (lb/hr)	EPA M10	135.8	250.3
Carbon Monoxide (lb/10^6Btu)	EPA M10	0.18	0.35
Inorganic Lead (lb/hr)	EPA M12	0.0085	0.018
Inorganic Lead (lb/10^6Btu)	EPA M12	1.2E-5	2.5E-5
Total Fluorides (lb/hr)	EPA M13B	< 1.74E-2	NA[d]
Total Fluorides (lb/10^6Btu)	EPA M13B	< 2.24E-5	NA[d]

(Table Continued on Next Page)

PROJECT OVERVIEW

Table 1-1:
Summary of Test Results (Continued)

TNMHC (lb/hr)[c]	EPA M25	28.99	42.9
TNMHC (lb/10^6Btu)[c]	EPA M25	0.040	0.06
THC (lb/hr)[•]	EPA M25A	0.501	42.9
THC (lb/10^6Btu)[•]	EPA M25A	0.00069	0.06
TNMHC (lb/hr)[!]	EPA M18/25A	0.00	42.9
TNMHC (lb/10^6Btu)[!]	EPA M18/25A	0.00	0.06
Mercury (lb/hr)	EPA M101A	6.73E-4	2.1E-4[g]
Mercury (lb/10^6Btu)	EPA M101A	9.75E-7	2.9E-7[g]
Beryllium (lb/hr)	EPA M104	< 2.52E-6	NA[d]
Beryllium (lb/10^6Btu)	EPA M104	< 3.62E-9	NA[d]
Arsenic (lb/hr)	EPA M108	2.36E-2	NA[d]
Arsenic (lb/10^6Btu)	EPA M108	3.40E-5	NA[d]
Chromium (lb/hr)	CTM 012	6.10E-3	NA[d]
Chromium (lb/10^6Btu)	CTM 012	1.07E-5	NA[d]
Copper (lb/hr)	CTM 012	1.42E-2	NA[d]
Copper (lb/10^6Btu)	CTM 012	2.19E-5	NA[d]

[a] Permit limits obtained from Okeelanta Power L.P. permit number: AC50-219413 PSD-FL-196.
[b] Average of all six EPA Method 8 runs which were performed.
[c] See Discussion on page 1-5.
[d] Not-Applicable-no permit limit listed.
[•] Methane fraction included in results.
[!] Methane fraction subtracted from results.
[g] Emission limit for wood waste.

PROJECT OVERVIEW

The testing was conducted on Stack C from May 20 through June 6, 1996. Coordinating the field testing were:

J. Prosser - Bechtel Power Corporation
J. Meriwether - Okeelanta Power L.P.
F. Sittig - Florida Department of Environmental Protection
D. Brown - HRS, Palm Beach County
D. Dreska - Clean Air Engineering

Table 1-1 contains a summary of the test program. More detailed test conditions and results of analysis are presented in Tables 2-1 through 2-13 on pages 2-1 through 2-13.

Table 1-1:
Summary of Test Results

Source Constituent	Sampling Method	Average Emission	Permit Limit[a]
Stack C			
Particulate (lb/hr)	EPA M5	3.51	21.5
Particulate (lb/10^{6}Btu)	EPA M5	0.0055	0.03
PM_{10} (lb/hr)	EPA M201A	3.16	21.5
PM_{10} (lb/10^{6}Btu)	EPA M201A	0.0047	0.03
Nitrogen Oxides (lb/hr)	EPA M7E	97.90	107.3
Nitrogen Oxides (lb/10^{6}Btu)	EPA M7E	0.16	0.15
Sulfur Dioxide (lb/hr)	EPA M8	25.2	71.5
Sulfur Dioxide (lb/10^{6}Btu)	EPA M8	0.039	0.10
Sulfuric Acid Mist (lb/hr)	EPA M8[b]	56.9	2.15
Sulfuric Acid Mist (lb/10^{6}Btu)	EPA M8[b]	8.9E-2	3.0E-3
Sulfuric Acid Mist (lb/hr)	EPA M8 (mod)[b]	0.902	2.15
Sulfuric Acid Mist (lb/10^{6}Btu)	EPA M8 (mod)[b]	1.4E-3	3.0E-3
Visible Emissions (%) (6-min. avg.)	EPA M9	10	20
Carbon Monoxide (lb/hr)	EPA M10	127.0	250.3
Carbon Monoxide (lb/10^{6}Btu)	EPA M10	0.20	0.35
Inorganic Lead (lb/hr)	EPA M12	0.017	0.018
Inorganic Lead (lb/10^{6}Btu)	EPA M12	2.8E-5	2.5E-5
Total Fluorides (lb/hr)	EPA M13B	< 2.00E-2	NA[c]
Total Fluorides (lb/10^{6}Btu)	EPA M13B	< 3.23E-5	NA[c]

(Table Continued on Next Page)

PROJECT OVERVIEW

Table 1-1:
Summary of Test Results (Continued)

TNMHC (lb/hr)[b]	EPA M25	35.4	42.9
TNMHC (lb/10^6Btu)[b]	EPA M25	0.0545	0.06
THC (lb/hr)[d]	EPA M25A	1.21	42.9
THC (lb/10^6Btu)[d]	EPA M25A	0.00185	0.06
TNMHC (lb/hr)[e]	EPA M18/25A	0.808	42.9
TNMHC (lb/10^6Btu)[e]	EPA M18/25A	0.0012	0.06
Mercury (lb/hr)	EPA M101A	1.1E-3	2.1E-4[f]
Mercury (lb/10^6Btu)	EPA M101A	1.7E-6	2.9E-7[f]
Beryllium (lb/hr)	EPA M104	< 2.47E-6	NA[c]
Beryllium (lb/10^6Btu)	EPA M104	< 4.25E-9	NA[c]
Arsenic (lb/hr)	EPA M108	5.64E-3	NA[c]
Arsenic (lb/10^6Btu)	EPA M108	9.02E-6	NA[c]
Chromium (lb/hr)	CTM 012	6.12E-3	NA[c]
Chromium (lb/10^6Btu)	CTM 012	9.82E-5	NA[c]
Copper (lb/hr)	CTM 012	1.31E-2	NA[c]
Copper (lb/10^6Btu)	CTM 012	2.10E-5	NA[c]

[a] Permit limits obtained from Okeelanta Power L.P. permit number: AC50-219413 PSD-FL-198.
[b] See Discussion on page 1-3.
[c] Not-Applicable-no permit limit listed.
[d] Methane fraction included in results.
[e] Methane fraction subtracted from results.
[f] Emission limit for wood waste.

Table 2-2. Maximum Fuel Usage and Heat Input Rates, Okeelanta Power Limited Partnership

Fuel	Heat Input		Heat Transfer Efficiency (%)	Heat Output		Fuel Firing Rate	
			Maximum Short-Term (per boiler)				
Biomass: Bagasse	715	MMBtu/hr	68	486	MMBtu/hr	168,235	lb/hr^a
Wood Waste	715	MMBtu/hr	68	486	MMBtu/hr	130,000	lb/hr^b
No. 2 Oil	490	MMBtu/hr	85	417	MMBtu/hr	3,551	gal/hr
Coal	490	MMBtu/hr	85	417	MMBtu/hr	40,833	lb/hr
Tire-Derived Fuel	340	MMBtu/hr	68	231	MMBtu/hr	21,935	lb/hr
			Annual Average (total all three boilers)				
NORMAL OPERATIONS							
Biomass	1.150E+13	Btu/yr	68	7.820E+12	Btu/yr	1,352,941	TPY^a
No. 2 Oil	0	Btu/yr	85	0	Btu/yr	0	gal/yr
Coal	0	Btu/yr	85	0	Btu/yr	0	TPY
Tire-Derived Fuel	0	Btu/yr	68	0	Btu/yr	0	TPY
TOTAL	1.150E+13	Btu/yr		7.820E+12	Btu/yr		
24.9% OIL FIRING							
Biomass	8.130E+12	Btu/yr	68	5.528E+12	Btu/yr	956,471	TPY
No. 2 Oil	2.696E+12	Btu/yr	85	2.291E+12	Btu/yr	19,533,086	gal/yr
Coal	0	Btu/yr	85	0	Btu/yr	0	TPY
Tire-Derived Fuel	0	Btu/yr	68	0	Btu/yr	0	TPY
TOTAL	1.083E+13	Btu/yr		7.820E+12	Btu/yr		
15.2% COAL FIRING							
Biomass	9.395E+12	Btu/yr	68	6.389E+12	Btu/yr	1,105,294	TPY
No. 2 Oil	0	Btu/yr	85	0	Btu/yr	0	gal/yr
Coal	1.684E+12	Btu/yr	85	1.431E+12	Btu/yr	70,167	TPY
Tire-Derived Fuel	0	Btu/yr	68	0	Btu/yr	0	TPY
TOTAL	1.108E+13	Btu/yr		7.820E+12	Btu/yr		
22% TIRE-DERIVED FUEL FIRING (9.1% TDF, weight basis)							
Biomass	8.970E+12	Btu/yr	68	6.100E+12	Btu/yr	815,455	TPY^b
No. 2 Oil	0	Btu/yr	85	0	Btu/yr	0	gal/yr
Coal	0	Btu/yr	85	0	Btu/yr	0	TPY
Tire-Derived Fuel	2.530E+12	Btu/yr	68	1.720E+12	Btu/yr	81,613	TPY
TOTAL	1.150E+13	Btu/yr		7.820E+12	Btu/yr		

Note: Total heat output required = 486 MMBtu/hr each boiler, and
7.820E+12 Btu/yr total all boilers.
Fuels may be burned in combination, not to exceed indicated total heat outputs.

^a Based on heating value for bagasse of 4,250 Btu/lb, wet basis.
^b Based on heating value for wood waste of 5,500 Btu/lb.

Table 4. Maximum Fuel Usage and Heat Input Rates per Boiler, Okeelanta Power Limited Partnership

Fuel	Heat Input	Heat Transfer Efficiency (%)	Heat Output	Fuel Firing Rate	
	Maximum Short-Term (per boiler)				
	(MMBtu/hr)		(MMBtu/hr)		
Biomass - Bagasse	715	68	486	168,235	lb/hr^a
- Wood Was	715	68	486	130,000	lb/hr^b
No. 2 Fuel Oil	490	85	417	3,551	gal/hr
Coal	490	85	417	40,833	lb/hr
Tire-Derived Fuel	340	68	231	21,935	lb/hr
	Annual Average (per boiler)				
	(Btu/yr)		(Btu/yr)		
NORMAL OPERATIONS					
Biomass	6.263E+12	68	4.259E+12	736,871	TPY^a
No. 2 Fuel Oil	0	85	0	0	gal/yr
Coal	0	85	0	0	TPY
Tire-Derived Fuel	0	68	0	0	TPY
TOTAL	6.263E+12		4.259E+12		
24.9% OIL FIRING					
Biomass	4.428E+12	68	3.011E+12	520,941	TPY
No. 2 Fuel Oil	1.468E+12	85	1.248E+12	10,638,685	gal/yr
Coal	0	85	0	0	TPY
Tire-Derived Fuel	0	68	0	0	TPY
TOTAL	5.896E+12		4.259E+12		
24.9% COAL FIRING					
Biomass	4.428E+12	68	3.011E+12	520,941	TPY
No. 2 Fuel Oil	0	85	0	0	gal/yr
Coal	1.468E+12	85	1.248E+12	61,172	TPY
Tire-Derived Fuel	0	68	0	0	TPY
TOTAL	5.896E+12		4.259E+12		
40.4% TIRE-DERIVED FUEL					
Biomass	3.733E+12	68	2.538E+12	339,364	TPY^b
No. 2 Fuel Oil	0	85	0	0	gal/yr
Coal	0	85	0	0	TPY
Tire-Derived Fuel	2.530E+12	68	1.720E+12	81,613	TPY
TOTAL	6.263E+12		4.259E+12		

^a Based on bagasse firing.
^b Based on wood waste firing.

Notes: Total heat output required = 4.259E+12 Btu/yr total both boilers.
Fuels may be burned in combination, not to exceed total heat outputs.
Based on fuel heating values as follows:
Bagasse - 4,250 Btu/lb
Wood Waste - 5,500 Btu/lb
No. 2 Fuel Oil - 138,000 Btu/gal
Coal - 12,000 Btu/lb
Tire-derived fuel - 15,500 Btu/lb

Basis for annual heat input

Grinding season: 440,000 lb/hr steam; 658 MMBtu/hr/boiler; 140 crop days
Heat input= 4.4218E+12 Btu/yr

Non-grinding season: 273,150 lb/hr steam; 369 MMBtu/hr/boiler; 225 crop days; 95% capacity
Heat input= 3.7859E+12 Btu/yr

Totals: Heat input= 8.2077E+12 Btu/yr

Table 1. Calculation of Theoretical Metals Concentration in Ash, Okeelanta Power L.P. Facility, South Bay, FL.

Parameter	Actual Woodwaste Fuel Analysis		Ash Element Concentration (ppm) (a)							
			Theoretical				Actual			
			Partitioning Factor (b)						Partitioning Factor	
	As Received 37 % Moisture (ppm)	Dry (ppm)	Fly Ash	Bottom Ash	Fly Ash	Bottom Ash	Fly Ash	Bottom Ash	Fly Ash	Bottom Ash
Arsenic	21.4	34.0	0.94	0.06	491	58	512	66	0.94	0.06
Barium	- -	- -	--	--	--	--	187	96	0.78	0.22
Cadmium	- -	- -	--	--	--	--	2.6	ND	1.00	0.00
Chromium	27.2	43.2	0.84	0.16	558	197	462	164	0.84	0.16
Copper	19.1	30.3	0.90	0.10	420	87	- -	- -	- -	- -
Lead	6.3	10.0	0.83	0.17	128	49	202	77	0.83	0.17
Mercury	0.078	0.12	0.30 (c)	N/A	0.6	- -	0.6	ND	N/A	N/A
Selenium	- -	- -	--	--	- -	- -	ND	ND	--	--
Silver	- -	- -	--	--	- -	- -	ND	ND	--	--

Note:
N/A = Not Applicable
ND = Non Detectable
(a) Assume woodwaste fuel consists of 10% ash, dry basis. Assume 65% of total ash becomes fly ash and 35% of total ash becomes bottom ash.
(b) Based on partitioning factors derived from actual ash concentrations. Partitioning factors for copper are assumed because no actual partitioning factors are available.
(c) Assume that 30% of the mercury condenses on to the fly ash and 70% volatilizes out the boiler stack.

Example Calculation - Theoretical Ash Element Concentration:

Basis = 1 lb of woodwaste fuel (dry)
Total arsenic present = 34.0 E-06 X 1 lb of wood (dry) = 34.0 E-06 lbs As
Arsenic partitioned to fly ash = 34.0 E-06 lbs X 0.94 = 31.96 E-06 lbs As
Arsenic partitioned to bottom ash = 34.0 E-06 lbs X 0.06 = 2.04 E-06 lbs As
Total ash generated = 10% of wood waste fuel (dry) = 0.10 lbs ash
Ash partitioned to fly ash = 0.10 lbs ash X 0.65 = 0.065 lbs fly ash
Ash partitioned to bottom ash = 0.10 lbs ash X 0.35 = 0.035 lbs bottom ash
Arsenic concentration in fly ash = 31.96 E-06 lbs As ÷ 0.065 lbs fly ash = 492 ppm
Arsenic concentration in bottom ash = 2.04 E-06 lbs As ÷ 0.035 lbs bottom ash = 58 ppm

General Equation:

Fly Ash

Ash Element Concentration (ppm) = [ppm of element X fly ash partitioning factor] ÷ [10% ash from wood waste X 65% ash is fly ash]

Bottom Ash

Ash Element Concentration (ppm) = [ppm of element X bottom ash partitioning factor] ÷ [10% ash from wood waste X 35% ash is fly ash]

General Equation - Actual Ash Concentration Partitioning Factor:

Fly Ash

Element Concentration (ppm) Fly Ash = [ppm (element) Fly Ash X 65%] ÷ {[ppm (element) Fly Ash X 65%] + [ppm (element) Bottom Ash X 35%]}

Bottom Ash

Element Concentration (ppm) Bottom Ash = [ppm (element) Bottom Ash X 35%] ÷ {[ppm (element) Fly Ash X 65%] + [ppm (element) Bottom Ash X 35%]}

Table 2. Calculation of Theoretical Metals Concentrations in Woodwaste Fuel, Okeelanta Power L.P. Facility, South Bay, FL.

Parameter	Ash Chemical Analysis (ppm)		Woodwaste Fuel Analysis Dry Basis (ppm) (a)	
	Fly Ash	Bottom Ash	Theoretical	Actual
Arsenic	512	66	35.6	34.0
Barium	187	96	15.5	- -
Cadmium	2.6	ND	0.17	- -
Chromium	462	164	35.8	43.2
Copper	- -	- -	- -	30.3
Lead	202	77	15.8	10.0
Mercury	0.6	ND	0.12 (b)	0.12
Selenium	ND	ND	ND	- -
Silver	ND	ND	ND	- -

Note:
ND = Non Detectable
(a) Assume woodwaste fuel consists of 10% ash, dry basis. Assume 65% of total ash becomes fly ash and 35% of total ash becomes botto
(b) Assume that 30% of the mercury condenses on to the fly ash and 70% volatilizes out the boiler stack.

Example Calculation - Theoretical Woodwaste Fuel Analysis Element Concentration:

Basis = 1 lb of ash
Total arsenic present in fly ash = 512 E-06 lb As per lb of fly ash X 0.65 lb fly ash per lb of ash = 332.8 E-06 lb As per lb of ash
Total arsenic present in bottom ash = 66 E-06 lb As per lb of bottom ash X 0.35 lb fly ash per lb of ash = 23.1 E-06 lb As per lb of ash
Total arsenic present in ash = 332.8 E-06 lb As + 23.1 E-06 lb As = 355.9 E-06 lb As
Total arsenic concentration in wood waste = 355.9 E-06 lbs As X 0.10 lb ash per lb wood waste (dry) = 35.6 ppm (dry)

General Equation for Theoretical Woodwaste Fuel Analysis Element Concentration:
Element Concentration (ppm) = {[ppm (element) in fly ash X 0.65 lb (fly ash)/ lb (ash)] +
[ppm (element) in bottom ash X 0.35 lb (bottom ash)/ lb (ash)]} X 0.10 lb (Ash) / lb (woodwaste)

Table 3. Calculation of Theoretical Metals Concentration in Ash from Combined Woodwaste and Tire-Derived Fuel, Okeelanta Power L.P. Facility, South Bay, FL.

Parameter	Actual Woodwaste Fuel Analysis Dry (ppm)	Tire Derived Fuel Analysis Dry (b) (ppm)	Theoretical Combined Fuel Analysis Dry (c) (ppm)	Theoretical Ash Element Concentration (ppm) (a) Partitioning Factor (d) Fly Ash	Bottom Ash	Fly Ash	Bottom Ash
Arsenic	34.0	7	25	0.94	0.06	435	52
Barium	- -	12	4	0.90	0.10	70	14
Cadmium	- -	6	2	0.90	0.10	35	7
Chromium	43.2	98.5	62	0.84	0.16	983	348
Copper	30.3	950	349	0.90	0.10	5,889	1,215
Lead	10.0	65	29	0.83	0.17	452	172
Mercury	0.12	0.1	0.12	0.30 (e)	N/A	0.7	N/A
Selenium	- -	105	36	0.90	0.10	614	127
Silver	- -	- -	- -	--	--	- -	- -

Note:
N/A = Not Applicable
(a) Assume woodwaste fuel consists of 10% ash (dry basis) and tire derived fuel consists of 4.78% ash.
Assume 65% of total ash becomes fly ash and 35% of total ash becomes bottom ash.
(b) Analysis is based on an average obtained from two literature sources:
1) Waste Recovery, Inc. Bulletin 20.20.1C Dec.1986. and Burning Tires for Fuel and Tire Pyrolysis
2) Burning Tires for Fuel and Tire Pyrolysis: Air Implications. EPA-450/3-91-024.
(c) Fuel mix is 65.4% woodwaste fuel and 34.6% tire-derived fuel, dry basis (75% woodwaste / 25% TDF on an as-fired basis).
(see calculations on following page)
(d) Based on partitioning factors derived from actual ash concentrations. Partitioning factors for barium, cadmium, copper, and selenium are assumed because no actual partitioning factors are available.
(e) Assume that 30% of the mercury condenses on to the fly ash and 70% volatilizes out the boiler stack.

Table 2-11. Maximum Concentration of Metals in Wood Waste Due To Treated Wood Burnin at Okeelanta Power Cogeneration Facility

WOOD WASTE PARAMETERS	
Total Biomass	1,352,941 tons
Total Wood waste	33% ^a
Total Wood waste	446,471 tons
CLEAN WOOD WASTE PARAMETERS	
Total Clean Wood Waste	97%
	433,076 tons
Arsenic content (1 ppm)	0.43 tons
Chromium content (3 ppm)	1.30 tons
Copper content (15 ppm)	6.50 tons
TREATED WOOD PARAMETERS	
Percent of total wood amount	3.0%
Total Treated Wood	13,394 tons
Treated wood density	26.3 lb/ft^3
CCA in treated wood	0.47 lb/ft^3
	0.01787 lb CCA/lb treated wood
Total CCA in treated wood	239.4 tons
Total CCA components in treated wood	
Arsenic (13%)	31.1 tons
Chromium (15%)	35.9 tons
Copper (9%)	21.5 tons
WOOD WASTE CONCENTRATIONS	
Total CCA components in wood waste	
Arsenic	31.6 tons
Chromium	37.2 tons
Copper	28.0 tons
Arsenic	70.7 ppm
Chromium	83.3 ppm
Copper	62.8 ppm

^a Expected percentage of total biomass on annual basis.

SPECIFIC CONDITIONS:

9. Prior to operation of the source, the permittee shall submit to the Department an operation and maintenance plan that will allow the permittee to monitor emission control equipment efficiency and enable the permittee to return malfunctioning equipment to proper operation as expeditiously as possible.

10. During land clearing and site preparation, wetting operations or other soil treatment techniques appropriate for controlling unconfined particulates, including grass seeding and mulching of disturbed areas, shall be undertaken and implemented. Any open burning of land clearing debris on this site shall be performed in compliance with Department regulations.

Operational and Emission Restrictions

11. The proposed cogeneration facility steam generating units shall be constructed and operated in accordance with the capabilities and specifications described in the application. The facility shall not exceed 74.9 (gross) megawatt generating capacity, 1 hour average, except during emission compliance and equipment performance tests. Equipment performance testing shall be limited to a 180-day calendar period after initial firing of each boiler. The hourly average generation rate shall be recorded in a log and the log retained for at least 2 years. The maximum heat input rate for each steam generator shall not exceed 715 MMBtu/hr when burning 100 percent biomass and 490 MMBtu/hr when burning 100 percent No. 2 fuel oil or low sulfur coal. Maximum heat input to the entire facility (total all three boilers) shall not exceed 11.5 x 10^{12} Btu per year. Steam production of each boiler shall not exceed an average of 455,418 lbs/hr at 1,500 psig, 975°F.

12. The primary fuel for the facility shall be biomass--bagasse and wood waste material. Authorized wood waste material is clean construction and demolition wood debris, yard trash, land clearing debris, and other clean cellulose and vegetative matter.

The biomass fuel used at the cogeneration facility shall not contain hazardous substances, hazardous wastes, biomedical wastes, or garbage. The fuel used at the cogeneration facility shall not contain special wastes, except wood, lumber, trees, tree remains, bagasse, cane tops and leaves, and other clean vegetative and cellulose matter.

The permittee shall perform a daily visual inspection of any wood waste or similar vegetative matter that has been delivered to the facility for use as fuel. Any shipment observed to contain prohibited materials shall not be used as fuel, unless such materials can be readily segregated and removed from the wood waste and vegetative matter.

SPECIFIC CONDITIONS:

The permittee shall design and implement a management and testing program for the wood waste and other materials delivered to the facility for fuel. The program shall be designed to keep painted and chemically treated wood, household garbage, toxic or hazardous non-biomass and non-combustible waste material, from being burned at this plant. This program shall be submitted to the Department's Bureau of Air Regulation for review and approval at least 60 days before the commencement of operations of the cogeneration facility. At a minimum, the program shall provide for the routine inspection and/or testing of the fuel at the originating wood yard sites as well as at the cogeneration site, to ensure that the quantities of painted or chemically treated wood in the fuel are minimized. Fuel scheduled for burning shall be inspected daily. Fuel tests shall be conducted weekly for the first year of operations at the facility and monthly thereafter, if the Department determines on the basis of the prior test results that less frequent testing is appropriate. A representative sample of ash for the biomass burned during each month for the first year of operation shall be analyzed for copper, chromium and arsenic by appropriate analytical procedures per 40 CFR 261, Appendix III, described in SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods. Wood waste containing more than 70.7 ppm arsenic or 83.3 ppm chromium or 62.8 ppm copper shall not be burned based on an analysis of a composite sample.

13. Any fuel oil burned in the facility shall be "new" No. 2 fuel oil with a maximum sulfur content of 0.05 percent sulfur as determined by the appropriate test method listed in 40 CFR 60.17. "New" oil means an oil which has been refined from crude oil and has not been used in any manner that may contaminate it.

14. Any coal burned in the facility shall be low sulfur coal with a maximum sulfur content of 0.70 percent and a maximum potential emission equivalent to 1.2 lb SO_2/MMBtu.

15. The consumption of No. 2 fuel oil shall be less than 25 percent of the total heat input to each boiler unit in any calendar quarter. Not more than 73,714 tons of coal shall be burned at this facility during any 12-month period. The combined heat input for coal and oil shall be less than 25 percent of the heat input on a calendar quarter basis.

16. The permittee shall maintain a daily log of the amounts and types of fuels used. The amount, heating value, beryllium content (coal only), sulfur content, and equivalent SO_2 emission rate (in lbs/MMBtu) of each fuel oil and coal delivery shall be kept in a log for at least two years. For each calendar month, the calculated SO_2 emissions and 12-month rolling average shall be determined (in tons) and kept in a log.

SPECIFIC CONDITIONS:

17. During the first three years of commercial cogeneration facility operation, the existing Boilers Nos. 4, 5, 6, 10, 11, 12, 14, and 15 (Permit Nos. AO50-169210, 190690, 175414, 190693, 175411, 169215, 189904, and 209094, respectively) may be retained for standby operation. During the period from initial firing to commercial operation, all three cogeneration boilers can be operated simultaneously with the existing boilers. Only biomass and No. 2 fuel oil may be used in the cogeneration boilers during this period. If more than 910,836 lb/hr steam is generated in the cogeneration boilers, steam in excess of 910,836 lb/hr must be sent to the Okeelanta sugar mill, and the existing boiler's steam production reduced by an equivalent amount. This period shall not exceed a total duration of 12 months. During this 12-month period, simultaneous operation of the existing boilers and the cogeneration boilers shall not occur on more than a total of 90 calendar days. After the first year of cogeneration facility operation, the existing boilers may be operated only when all three cogeneration boilers are shutdown. During operation, the existing boilers must meet all requirements in the most recent construction and operation permits for the boilers. These existing boilers shall be shutdown and rendered incapable of operation within three (3) years of commercial startup of the cogeneration facility, but no later than January 1, 1999.

18. Boiler No. 16 (AC50-191876) may be retained as a standby boiler for the cogeneration facility provided its permit is amended to authorize standby use. Boiler No. 16 may be operated during initial startup, debugging, and testing of the cogeneration facility for a period not to exceed 12 months following initial firing of fuel in the new boilers. After the first year of cogeneration operation, this boiler may be operated only when one or more of the three cogeneration boilers are shutdown. During operation, this boiler must meet all requirements in the current construction or operating permit for the boiler.

19. For the biomass, coal, fly ash, and mercury control system reactant handling facilities:

a. All conveyors and conveyor transfer points shall be enclosed to preclude PM emissions (except those directly associated with the stacker/reclaimers, for which enclosure is operationally infeasible).

b. Inactive coal storage piles shall be shaped, compacted, and oriented to minimize wind erosion. Sod, wetting agents, synthetic or other appropriate materials shall be used to cover those portions of the inactive coal pile that are prone to wind or water erosion.

SPECIFIC CONDITIONS:

c. Water sprays or chemical wetting agents and stabilizers shall be applied to storage piles, handling equipment, unenclosed transfer points, etc. during dry periods and as necessary to all facilities to maintain an opacity of less than or equal to 5 percent, except when adding, moving or removing coal from the coal pile, which would be allowed no more than 20 percent opacity.

d. The mercury control system reactant storage silos shall be maintained at a negative pressure while operating with the exhaust vented to a filter control system. Particulate matter emissions from each of the three silos shall not exceed a visible emission reading of 5 percent opacity. A visible emission test is to be performed annually on each silo.

20. Visible emissions from any boiler shall not exceed 20 percent opacity, 6-minute average, except up to 27 percent opacity is allowed for up to 6 minutes in any 1-hour period. Based on a maximum heat input to each boiler of 715 MMBtu/hr for biomass fuels and 490 MMBtu/hr for No. 2 fuel oil and coal, stack emissions shall not exceed any limit shown in the following table:

	Emission Limit (per boiler)[d]						Total All[e]
	Biomass		No. 2 Oil		Bit. Coal		Three Boilers
Pollutant	(lb/MMBtu)	(lb/hr)	(lb/MMBtu)	(lb/hr)	(lb/MMBtu)	(lb/hr)	(TPY)
Particulate (TSP)	0.03	21.5	0.03	14.7	0.03	14.7	172.5
Particulate (PM_{10})	0.03	21.5	0.03	14.7	0.03	14.7	172.5
Sulfur Dioxide							
3-hour average	---	---	---	---	1.2	588.0	---
24-hour average	0.10	71.5	0.05	24.5	1.2	588.0	---
Annual average	0.02[a]	---	---	---	1.2[a]	---	1,154.3[f]
Nitrogen Oxides							
Annual average	0.15[a]	107.3[a]	0.15[a]	73.5[a]	0.17[a]	83.3[a]	862.5
Carbon Monoxide							
8-hour average	0.35	250.3	0.2	98.0	0.2	98.0	2,012.5
Volatile Organic Compounds	0.06	42.9	0.03	14.7	0.03	14.7	345.0
Lead	2.5×10^{-5}	0.018	8.9×10^{-7}	0.0004	6.4×10^{-5}	0.031	0.17
Mercury	6.3×10^{-6}[b] 0.29×10^{-6}[c]	0.0045[b] 0.00021[c]	2.4×10^{-6}	0.00118	8.4×10^{-6}	0.0041	0.0300

FLORIDA DEPARTMENT OF HEALTH & REHABILITATIVE SERVICES
Working in partnership with local communities to help people be self-sufficient, experience good health and live in stable families and communities.

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

September 9, 1996

WARNING NOTICE
AP-30- 96

Mr. Dennis Space, General Manager
Okeelanta Power Limited Partnership
316 Royal Poinciana Plaza
Palm Beach, Florida 33480

Subject: Okeelanta Cogeneration Plant
AC50-2191413/PSD-FL-196.

Dear Mr. Space:

The Palm Beach County Public Health Unit (PBCPHU) is the delegated local air pollution control program responsible for ensuring compliance for air pollution facilities in Palm Beach County. The purpose of this letter is to advise you of possible violations of state regulations and to seek your cooperation in resolving the matter.

The Health Unit recently performed a review of the report of emissions compliance test, conducted for all three boilers at the above referenced facility in May 1996; a copy of the summary of the review is attached. The emission compliance test report revealed that the Okeelanta Power Limited Partnership (OPLP) failed to comply with the permitted emission standards for various air pollutants, specifically, for Lead (Boiler C), Nitrogen Oxides (Boiler C), Sulfur Dioxide (permitted test method not used), Sulfuric Acid Mist (Boiler A, B & C), Visible Emissions (Boiler A), Mercury (Boiler A, B & C) and Visible Emission Test for Mercury Reactant Silo (failed to test). Florida Statutes 403.161(1)(b), provides that it is a violation to fail to comply with any rule, regulation, order, permit or certification adopted or issued by the Department pursuant to its lawful authority. It appears that the OPLP failed to comply with the emission standards, for the above referenced pollutants, contained in the facility's construction permit, Florida Administrative Code - Rule 62-212.400, Prevention of Significant Deterioration, and Federal Rule 40 CFR 60, NSPS, Subpart Da.

Furthermore, Sections 403.161 and 403.141, Florida Statutes provide that whoever commits a violation shall be liable to the state for any damage caused and civil penalties and/or finds up to $10,000.00 per day or portion thereof.

If your company wishes to pursue the administrative resolution of this matter please contact Mr. Ajaya K. Satyal at Palm Beach County Public Health Unit, 901 Evenria Street, West Palm Beach, Florida 33402, telephone (561) 355-3070, within 14 days of receipt of this letter. A meeting will be arranged with the Palm Beach County Environmental Control Officer, the Health Unit personnel and the representative(s) of the Florida Department of Environmental Protection to discuss the matter. The Health Unit is interested in reviewing any facts that the OPLP may have that will assist in determining whether any violations have occurred.

Failure to respond to this notice could result in further enforcement action.

Sincerely,

Frank J. Gargiulo, P.E., R.S., Director
Division of Environmental Health & Engineering

FJG/AKS/lh

cc: Rebecca Duke, Esq., Environmental Control Officer
James Merimether, OPLP
David Knowles, P.E., DEP, Fort Myers
Jim Pennington, P.E., DARM, Tallahassee
Al Linero, P.E. DARM, Tallahassee

CC: W. Hanks
S. Arif
M. Halley

R file

Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

August 16, 1996

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Dennis Space
General Manager
Okeelanta Power Limited Partnership
Post Office Box 8
South Bay, Florida 33493

Re: Okeelanta Power Limited Partnership
Tire Derived Fuel Permit Amendment
Permit File No. AC50-219413, PSD-FL-196A

Dear Mr. Space:

The Department has received the responses to our incompleteness letter for incorporating the use of Tire Derived Fuel (TDF) as a supplemental fuel at Okeelanta Power in Palm Beach County. Based on our review of the responses, we have determined that additional information is needed in order to continue processing this application package. Please submit the information requested below to the Department's Bureau of Air Regulation:

1. Attached are concerns raised by the Bureau of Solid and Hazardous waste pertaining to air and ash issues. Please respond to their concerns. If there are any questions on these issues, please contact Kathy Anderson at (904) 488-0300.

2. As stated in your response, compliance testing on all three boilers was performed during the month of May 1996. Did the test show compliance with all permit requirements for criteria and non-criteria pollutants? Please submit a summary of the test results.

3. The corrected application pages submitted with the response indicates maximum TDF input for each boiler to be 40.4 percent on a weight basis. The original application stated TDF input to be 25 percent on a weight and short-term basis. Please explain the discrepancy between the two numbers.

The Department will resume processing this application after we receive the requested information. Should you have any questions, please contact Syed Arif at 904-488-1344.

Sincerely,

for A. A. Linero, P.E.
Administrator
New Source Review Section

AAL/sa/t

cc: D. Knowles, SD
J. Koerner, PBCHU
K. Anderson, DEP
J. Harper, EPA
J. Bunyak, NPS
D. Buff, KBN

Florida Department of
Environmental Protection

Memorandum

TO: Syed Arif

FROM: Kathy Anderson, Solid Waste Section SKA 8/12/96

DATE: August 12, 1996

SUBJECT: Osceola & Okeelanta Sugar Mill Cogeneration Facility
Tire Derived Fuel Permit Amendment

I have reviewed the July 17,1996 response that Okeelanta and Osceola had to your first RAI on Permit Amendment # AC50-269980. The following is a list of questions that I would like to see addressed pertaining to air and ash :

1. The current permit requires that the concentration of heavy metals be measured in the wood fuel prior to incineration and in the ash prior to disposal. Please provide mass balance calculations for heavy metals in the ash and wood fuel. For example, since the average concentration of arsenic is known in the fly ash, back calculate the concentration of arsenic in the wood fuel prior to incineration. How do the calculated numbers compare to the actual concentrations observed in the wood fuel ? Submit summary tables of actual data collected for heavy metals in ash and wood fuel to validate the use of average concentrations numbers used in the mass balance calculations.
2. Compare the calculated concentration of arsenic in the wood fuel with the <3% CCA treated wood by volume assumption used in the 5/2/96 Okeelanta submittal (see Table 2-11). Explain any significant differences.
3. Compare the calculated concentration of arsenic in the wood fuel with the <2.4% CCA treated wood by volume assumption used in the 4/18/95 Osceola submittal (see Table 2-9) ?
4. The TDF data presented is for TDF fuel only, what are that anticipated concentrations of heavy metals in the wood fuel combined with TDF ? What are the anticipated concentrations of heavy metals in the ash ? Please present mass balance calculations supporting the anticipated concentrations of heavy metals.

I have many more questions pertaining to ash that will be dealt with in the solid waste tire permit which is currently being processed in South District, but I felt like these questions pertained to air permit conditions and could be addessed through your RAI.

These question may have been addressed in the original application, if so please fax me a copy of the information. Additionally, please send me a copy of the portion of the facility's air permit that addresses the wood waste and TDF fuel being received and incinerated for each facility and the current ash handling requirements, i.e. wood waste sampling & storage requirements.

FLORIDA DEPARTMENT OF HEALTH & REHABILITATIVE SERVICES

Working in partnership with local communities to help people be self-sufficient, experience good health and live in stable families and communities.

August 5, 1996

Al Linero, P.E.
New Source Review Section
Bureau of Air Regulation
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Re: Cogeneration Power Plants - Tire Derived Fuel (TDF)
Okeelanta Power Ltd. and Osceola Power Ltd.
Second Comments

Dear Mr. Linero:

The Health Unit has reviewed the additional information received regarding the above projects and has the following comments. I have numbered my comments to correspond with the additional information submittal for Osceola Power Ltd.

Comments on Response to DEP Request for Additional Information

(1) We agree that there are operational and equipment difficulties with the boilers at Osceola Power. The request for an extension of the requirement to test within 60-days of reaching maximum production should be granted. We also believe that many operational and equipment problems continue to exist at Okeelanta Power, as evidenced by several failed performance tests.

(2) These facilities receive yard waste, i.e., commingled yard waste and construction and demolition debris. Originally, the air permits were modified to restrict the boilers to burn less than 30% municipal solid waste (MSW) by weight in order to avoid additional NSPS requirements. To date, tests on biomass received at the cogeneration sites have tested high for arsenic and TCLP ash tests have seen high results for both arsenic and chromium. We find it difficult to support adding another MSW fuel (TDF) before the fully functional and operating in compliance with the *currently permitted fuels*.

(3) No comment.

(4) Recent testing at Okeelanta Power has indicated several failed tests for mercury emissions as well as lead. The applicant states that maximum short term mercury emissions occur during coal firing, yet the failures occurred during biomass firing. The Health Unit does not believe there is reasonable assurance that the facility can meet the current mercury emissions limit or continuously meet the lead emission limit.

(5) The Health Unit is willing to consider tire derived fuel as a tradeoff for burning coal. However, we would prefer the applicant to pursue this additional fuel source after the power generation facility is fully operational and in compliance with the emission limiting standards for the currently permitted fuels.

(6) Again, recent TCLP ash tests indicate high levels of arsenic and chromium in the ash from burning biomass fuels.

(7) Again, recent TCLP ash tests indicate high levels of arsenic in the ash from burning biomass fuels.

DISTRICT IX
PALM BEACH COUNTY PUBLIC HEALTH UNIT - P.O. BOX 29 - WEST PALM BEACH, FL. 33402
LAWTON CHILES, GOVERNOR

Comments on Response to PBCPHU Request for Additional Information

(1-3) No comments.

(4) We agree that potential HCl emissions are an order of magnitude lower than potential SO_2 emissions, however, so are the major source applicability thresholds. The increase in HCl emissions will make this facility a major source of this hazardous air pollutant. The facility has installed a storage silo and injection system for activated carbon to control mercury emissions. There are products available on the market which consist of the combination of activated charcoal and lime which could be used with the existing injection equipment and ESPs to provide control for the acid gases. We recommend at least initial tests be performed to determine uncontrolled HCl emission levels.

(5) We realize that this facility will not be burning "garbage". However, TDF contains a substantially higher chlorine content than the current fuels which leads us to believe that the conditions exist which may cause the formation of dioxins and furans in the flue gas. If TDF becomes a permitted fuel, we recommend at least initial tests be performed to determine the levels of dioxins and furans while burning TDF. Tested levels should be below NSPS levels for municipal waste combustors as well as any ARC.

(6) The PSD permits require sulfuric acid mist (SAM) to be tested by EPA Method 8. Tests performed using this method at Okeelanta failed the SAM limits in the permit. The test team made modifications to the test method to remove interference from the combination of high moisture and SO_2 present in the flue gas. The DEP Emissions Monitoring Section should make a determination on whether or not the modified test method used is acceptable for this facility and whether or not it indicates compliance with the permit limit.

(7) Does the Department consider burning TDF in these cogeneration plants similar enough in nature to burning wood residue in a paper mill to constitute "reasonable assurance"?

CONCLUSION AND RECOMMENDATIONS

If these units were fully operational and had passed all required emissions performance tests, the Health Unit would not be as hesitant in approving TDF as a replacement fuel for coal. However, this is not the case. There have been numerous construction and equipment problems which have resulted in delays and shutdowns. Biomass has been received on site which tested high for metals. Ash tests have also indicated elevated metals content. Emissions performance tests indicate failure to meet the emission limiting standards for lead, nitrogen oxides, sulfuric acid mist, mercury, and visible emissions. The Health Unit asks the Department to request a withdrawal of the application for a permit to authorize the burning of tire derived fuels until such a time that the cogeneration plants are fully operational and able to comply with the current conditions of the air construction permit.

Also, I am enclosing the following reports for your records:

- Summary of the Okeelanta Power Ltd. Compliance Test Review (Performed by the Health Unit)
- Summary of the Ash Issues at Okeelanta Power Ltd. (Solid / Hazardous Waste Sections of DEP, Tallahassee)

If you have any questions on these comments please contact me at the numbers below.

Sincerely,

For the Division Director
Environmental Health and Engineering

Jeffery J. Koerner

Jeffery F. Koerner, PE
Air Pollution Control Section
Phone: (407) 355-4549 FAX: (407) 355-2442

CC: D. Buff, KBN
✓ D. Knowles, SD
EPA
NPS
S. Arif, BAR

Filename: COGEN_2.CMT

Okeelanta Power Limited Partnership
Cogeneration Facility
Summary of Compliance Testing, May 1996

The Okeelanta Power Limited Partnership (OPLP) owned cogeneration facility has three spreader stoker boilers which are fired with biomass (bagasse and wood chips) as primary fuel and No. 2 fuel oil as an start-up fuel. This facility is also permitted to use coal with low sulfur content. This facility currently possesses a source construction permit from Florida Department of Environmental Protection.

Each boiler at the facility has a heat input of 715 million british thermal unit (MMBTU) / hour on biomass and 490 MMBTU / hour on fossil fuel. The design capacity for steam production for each boiler is 455,400 pounds/ hour (lb/hr) of steam at 1,500 psig and 975 degree F.

Each boiler is equipped with an electrostatic precipitator (ESP), a thermal De NOx system, and an activated carbon injection system to control particulate matter, nitrogen oxides, and mercury emissions. Emission controlled flue gas from each boiler is exhausted out in to the ambient air through its 242 feet tall stack.

The facility contracted with the Clean Air Engineering ,Inc. to conduct the required compliance tests for the various regulated pollutants. The test was performed in the month of May 1996. Required test notifications and its amendments were submitted to by the Palm Beach County Public Health Unit. Test reports for Boiler A and Boiler B were received on July 15, 1996. Report for Boiler C was received on July 25, 1996.

The emission rate of lb/MMBTU was calculated using a fuel factor (F-factor) of 8489 dry standard cubic feet(dscf)/ MMBTU. This was obtained from fuel analysis of five fuel samples. For Boiler C, the fuel factor of 9567 dscf/MMBTU was utilized after analysis of 11 fuel samples.

Emissions test results:

1. Particulate and PM10 Emissions	Passed emissions standards for Boiler A, B and C.
2. Lead Emissions	Boiler C failed the lb/MMBTU limit. Actual emissions were 2.8*E-5 lb/MMBTU, allowable standard is 2.5*E-5 lb/MMBTU.
3. Nitrogen Oxides Emissions	Boiler C failed the lb/MMBTU limit. Actual emissions were .16 lb/MMBTU, allowable standard is .15 lb/MMBTU.
4. Carbon Monoxides and VOC	Passed emissions standards for Boiler A, B and C.

5. Sulfur Dioxides Emissions	For all the boilers, permitted test methods for this pollutant are Method 6, 6C or 19. Test was performed using Method 8. Even though the emissions from the test are showing compliance with the permitted standard, the results are unacceptable.
6. Sulfuric Acid Mist Emissions	Failed compliance test for all the boilers when tested utilizing the permitted specified method. Facility informed the PBCPHU about this during the testing period and decided to run tests using Modified Method 8. It is argued that high levels of sulfuric acid mist was due to suspected positive bias caused by interference from the combination of high percent of moisture and sulfur dioxide in the flue gas resulting in the standard Method 8 samples to be non-representative of the actual stack gas concentration of sulfuric acid mist.
7. Visible Emissions	Test failed for Boiler A. The Visible Emissions evaluation performed on 5/11/96 at 12:30-13:30 failed the emission standards. The rolling average of one hour reading indicates several six minutes average above 20% and 27% opacity.
8. Mercury Emissions	Test failed for Boilers A, B and C. Allowable emissions for wood waste are .29*E-6 lb/MMBTU and .00021 lb/hr. Actual emissions for Boiler A were .97*E-6 lb/MMBTU and .000673 lb/hr. For Boiler B, the emissions were .96*E-6 lb/MMBTU and .00067 lb/hr. For Boiler C, the emissions were 1.7*E-6 lb/MMBTU and .0011 lb/hr.
9. Arsenic, Chromium, Copper, and Beryllium	No emission standard for biomass in the permit. All these pollutants were tested using the specified methods in the permit.
10. Testing within rated capacity	All the tests were conducted within the 10% of the design capacity of steam production rate.
11. Visible Emissions Test for Mercury Reactant Silo	Not included with the test reports.

Okeelanta Cogeneration Facility
Ash Issues

The Solid Waste Section of the FDEP in Tallahassee and the Hazardous Waste Section of the South District office of FDEP are in the process of reviewing the test results of the boiler ash for the above referenced facility. The test results extend over the period of November 1995 to April 1996. It was observed for the Okeelanta facility that out of 11 samples of fly ash taken that 3 samples appeared to fail for the toxicity characteristic leaching procedure (TCLP) for chromium. It was also observed that the average total metals concentration of arsenic in the fly ash was 493 mg/kg, exceeding the FDEP Bureau of Waste Clean-Up's soil clean-up goals guidance value of 0.8 mg/kg for residential use and 3.7 mg/kg for industrial use.

On July 18,1996 Kathy Anderson, Mary Jean Yon and Richard Tedder of the FDEP Tallahassee Solid Waste Section met with Mr. James Merriwether, environmental manager for the facility, in Tallahassee to discuss issues pertaining to the metals concentrations in the fly ash and concerns with land application of the fly ash. Mr. Merriwether stated he did not believe the earlier fly ash samples were representative of normal facility operations due to a blade deterioration problem in the process fans. He also stated that to fully evaluate the toxicity characteristic (TC) of the ash, the facility would perform an initial characterization of the ash residue when the facility was fully operational in September of 1996. Additionally he stated that the facility would perform ash characterization in accordance with the EPA's Guidance For The Sampling And Analysis Of Municipal Waste Combustion Ash For The Toxicity Characteristic, June 1995.

The Tallahassee Solid Waste Section and the Hazardous Waste Section of the South District office of FDEP agree the facility should use the TC protocol by EPA. Once the facility adequately characterizes their ash, the FDEP will review the data presented.

On July 30,1996 Mr. Merriwether telephoned Ms. Anderson and stated that the facility would be sending the FDEP a letter of their intent to sample the ash for the TC and total metals concentrations when the facility is fully operational. Mr. Merriwether also stated that the facility anticipates land applying their ash on the sugar cane farm once the facility is fully operational. In the interim, the facility is stockpiling the ash on-site in the wood fuel pile area.

KBN
A GOLDER ASSOCIATES COMPANY

File

July 17, 1996

Mr. Al Linero, P.E.
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 33493

RECEIVED
JUL 19 1996
BUREAU OF
AIR REGULATION

Re: Okeelanta Power Limited Partnership
Tire-Derived Fuel Permit Amendment
Facility ID No. 0990332
Permit File No. AC50-219413; PSD-FL-196A

Dear Mr. Linero:

KBN Engineering and Applied Sciences, Inc. (KBN) has prepared the following responses to your request for additional information concerning the request to utilize tire-derived fuel at the Okeelanta Power Limited Partnership cogeneration facility.

1. On March 26, 1996, the Palm Beach County Public Health Unit (PBCPHU) granted Okeelanta Power an extension of the 60 day requirement to perform stack testing on Boilers A and B, as required by Specific Condition No. 21 of permit AC50-219413 (see attached letter). On March 11, 1996, the PBCPHU waived the requirement to test Boiler C within the 60 day requirement stated in Specific Condition No. 21. It is noted that initial compliance testing on all three boilers was performed during the month of May 1996.

2. To comply with the 30 percent or less by weight limit on municipal solid waste (MSW) as stated in the definition of "cofired combustor" under 40 CFR 60, Subparts Ea and Cb, Okeelanta Power will set up a weigh scale specifically to meter and record the amount of tire-derived fuel (TDF) that is fed to the boilers. Due to the nature and the state in which Okeelanta Power receives yard waste (i.e., co-mingled yard waste and construction and demolition debris), Okeelanta plans to obtain supplier certification analysis documenting the percentage of yard waste it receives in each delivery. This information along with the weight of each delivery will be used to determine the weight of MSW in each delivery. This data will be compiled, along with the amount of other fuels burned, and totaled on a calendar quarter basis to demonstrate compliance with the 30 percent by weight limitation, as required by the New Source Performance Standards (NSPS).

3. There will be no increase above the current allowable lead emissions of 0.031 lb/hr and 0.17 TPY due to TDF burning. These maximum emissions occur under maximum coal firing conditions. As shown in Table 2-7 of the application, the lead emission factor for TDF of 4.2E-05 lb/MMBtu is lower than that for coal (6.4E-05 lb/MMBtu). As shown in Table 2-8, the annual lead emission when burning the maximum amount of TDF (0.1653 TPY) is less than emissions when burning the maximum amount of coal (0.17 TPY). Due to limitations on SO_2 emissions, it would not be possible to burn the maximum amount of coal and also burn TDF, or to burn the maximum amount of TDF and also burn coal.

6241 Northwest 23rd Street, Suite 500, Gainesville, Florida 32653-1500, 352-336-5600 FAX 352-336-6603
5405 West Cypress Street, Suite 215, Tampa, Florida 33607, 813-287-1717 FAX 813-287-1716
1801 Clint Moore Road, Suite 105, Boca Raton, Florida 33487, 407-994-9910 FAX 407-994-9393
7785 Baymeadows Way, Suite 105, Jacksonville, Florida 32256, 904-739-5600 FAX 904-739-7777
1616 'P' Street NW, Suite 350, Washington, DC 20036, 202-462-1100 FAX 202-462-2270

4. The quantity of ash (bottom, siftings, and fly) generated from TDF combustion can be calculated from the TDF ash content of 4.78 percent and the maximum TDF usage of 81,600 TPY. This yields 3,900 TPY of ash due to TDF burning. The concentration of each element in the TDF ash is presented in Table 1. These calculations are based on the TDF fuel analysis (presented in Table 2-6 of the permit application), the maximum amount of TDF to be burned, the TDF ash content, and the electrostatic precipitator (ESP) removal efficiency.

   Please note that Table 1 presents concentrations of elements as if they were all incorporated into the TDF ash only. However, TDF will be burned in combination with biomass, which, on average, will generate about 5 times more ash than TDF burning will generate. Thus, actual trace element concentrations in the ash due to combined biomass/TDF firing will be much lower than those shown in Table 1.

   Tentatively, Okeelanta Power plans to dispose of the ash generated during TDF firing at the Chambers Landfill at Lake Okeechobee.

Presented below are responses to PBCPHU comments dated June 13, 1996.

1. The facility does not plan to receive any whole tires. All tires will be chipped offsite and shipped to Okeelanta Power by truck. The only additional equipment installed to accommodate TDF will be a feed hopper and conveyor belt. TDF unloaded in the TDF storage area will be moved by front-end loader and placed in the feed hopper. This hopper will feed to a conveyor belt, which will discharge onto the main biomass conveyor belt.

2. It is currently planned to relocate the ID fans to downstream of the ESPs. The relocation is scheduled to take place from July through September 1996. One boiler will be maintained and two will be taken offline to allow the facility to conduct the relocation operation during this period. There are no plans currently to modify the fuel handling system to handle TDF fuel. The present system is considered adequate to handle the tire chips.

3. (a) The facility is requesting exemption from 40 CFR 60 Subpart Cb as a "cofired combustor." The rule citation is 40 CFR 60.32b(I). This exemption is the same exemption provided for under 40 CFR 60, Subpart Ea, which exempts all units which combust less than 30 percent by weight of MSW on a calendar quarter basis.

   (b) The facility is subject to 40 CFR 60, Subpart Da.

   (c) The statement is correct. The facility is requesting exemption from 40 CFR 60 Subpart Ea as a "cofired combustor." The rule citation is 40 CFR 60.50a(d). This provision exempts all units which combust less than 30 percent by weight of MSW on a calendar quarter basis.

4. Emissions of hydrochloric (HCl) from the Okeelanta Power facility are projected to increase with the burning of TDF. This is due to the chlorine content of the TDF. These emission estimates assume that all the chlorine in the TDF is emitted as HCl, and that none is removed in the air pollution control equipment. In reality, a portion of the acidic HCl gases should be absorbed into the alkaline

fly ash. Studies performed by National Council of the Paper Industry for Air and Stream Improvement, Inc. (NCASI), have demonstrated upwards of 25 percent to 75 percent removal of SO_2 due to alkaline fly ash. HCl gases should be absorbed in a similar manner. No specific control equipment is planned at this time for HCl. No detrimental effect due to HCl in the flue gases is expected. The potential HCl emissions are approximately an order of magnitude lower than potential SO_2 emissions, and no problems are expected due to SO_2 emissions.

5. It is emphasized that the facility will not be burning garbage (MSW or RDF) in the classic sense. The facility will be burning clean wood waste, which may have minor contaminants (plastics, fabrics, leather, metal, etc.) in trace amounts. The only reason that some of the wood waste burned at the facility is classified as MSW is because of the broad definition of MSW in the NSPS. The definition classifies "yard waste" as MSW. "Yard waste" is defined as any vegetative material generated from residential, commercial, retail, institutional or industrial sources. Some of the wood waste burned at the facility may originate from these sources.

   Dioxans and furans resulting from combustion of household garbage (MSW in the traditional sense of the word) or RDF are attributed primarily to the chlorine content of the MSW/RDF and combustion conditions. MSW contains approximately 0.5 percent chlorine. The MSW/RDF fuel is nonuniform in nature; the heating value, moisture content, and mixture of metals, non-metals, etc., varies considerably. These aspects result in incomplete combustion of the fuel and the resulting formation of dioxans/furans. In contrast, TDF is a very uniform, low-moisture fuel with a high heating value compared to MSW/RDF. In addition, the chlorine content is much lower, approximately 0.15 percent. Based on these aspects, as well as the fact that TDF will be burned in combination with biomass, at relatively low percentages, it was concluded that it is more appropriate to use emission factors based on wood waste firing. Also, the maximum annual dioxin impact predicted for the Okeelanta Power facility is 3 orders of magnitude below the Florida ambient reference concentration (FARC); therefore no threat to the public is anticipated due to TDF firing.

6. The current permit limit for sulfuric acid mist (SAM) is 0.003 lb/MMBtu. A higher emission rate was specified in the application for TDF to account for the higher sulfur in the fuel. The emission factor for TDF is 0.01 lb/MMBtu.

   Stack testing of Boiler A at Okeelanta Power was performed during May 1996 and the final report was submitted to the PBCPHU on July 11,1996. Early testing performed using U.S. Environmental Protection Agency (EPA) Method 8 for SAM showed exceedances of permitted SAM limits. Later in May, additional SAM emission testing using EPA Method 8 was conducted simultaneously with a modified EPA Method 8 test. The testing showed that initial results previously obtain using EPA Method 8 were positively biased primarily due to interferences from the combination of high flue gas moisture and SO_2.

   Using a modified EPA Method 8 test, SAM emissions were approximately one-third of the permitted limit while burning wood waste. Based on the modified Method 8 results for wood waste combustion, Okeelanta expects to achieve similar results while firing a mixture of biomass and TDF.

7. In the NCASI document cited, the term "ton wood residue" means the tons of wood waste burned in the boiler. NCASI sometimes terms woodwaste material as "wood residue," since in a paper mill, the wood waste can come from bark, sawdust, and wood chips.

It has also come to our attention that some of the pollutant pages in the application were incorrect in regards to some of the lb/hr and TPY potential emissions from each boiler. The confusion stemmed from the fact that the total emissions from all three boilers cannot exceed certain TPY limits, but each individual boiler may have additional flexibility. The corrected application pages are attached, along with the supportive emission tables for a single boiler operating at maximum (Tables 2, 3, and 4 attached). These changes were incorporated into the recent Title V application for the facility.

If you have any questions or need other information, please call me.

Sincerely,

David A. Buff

David A. Buff
Principal Engineer
Florida Registration 19011

SEAL

DB/mk

Attachments

cc: James Meriwether, Okeelanta Power
Bill Tarr, Flo-Sun, Inc.
Paul Wesson, KBN
File (2)

CC: EPA
NPS
Palm Bch Co.
SD
S. Arif, BAR

STATE OF FLORIDA
DEPARTMENT OF HEALTH AND REHABILITATIVE SERVICES

ESE-WPB

March 11, 1996

James M. Meriwether
Environmental Health
and Safety Representative
Okeelanta Power Limited Partnership
P.O. Box 8
South Bay, Florida 33493

Re: Okeelanta Cogeneration Facility Emission Test Schedule
AC 50-219413/PSD-FL-196.

Dear Mr. Meriwether:

This is written in response to your letters dated March 5, 1996 and March 8, 1996.

In the first letter you have provided the emission test scheduled for the cogeneration facility; and have requested that the requirement to test Boiler C within 60 days be waived. The Palm Beach County Public Health Unit (PBCPHU) has discussed your request with the Florida Department of Environmental Protection and hereby waives the requirement to test Boiler C within 60 days. The PBCPHU understands that Okeelanta Power Limited Partnership (OPLP) will initiate testing as soon as possible.

In the later letter, dated March 8, 1996, you have requested that OPLP be allowed to test its boilers at their normal operating conditions (i.e. 70 to 80% of the permitted heat input). The Specific Condition #21 (a) of your PSD permit requires compliance testing within 10% of the permitted heat input. We have reviewed your request and provide the following comment. Rule 62-297, Stationary Sources Emission Monitoring, Section 62-297.310(2) general Test Requirements, allows conducting emission test at a limit less than the permitted capacity, but subsequently the emissions unit will be limited to 110 percent of the test load until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days for the purpose of additional compliance testing to regain the authority to operate at the permitted capacity. Permitted capacity is defined as 90-100 percent of the maximum operation rate allowed by the permit.

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LAWTON CHILES, GOVERNOR

The PBCPHU would not object to testing at a lower capacity, but OPLP needs to be aware that any deviation from this rule would put the cogeneration facility out of compliance. A copy of the above cited rule is attached for your information.

Please call us (407) 355-3070, if you have any questions.

Sincerely,

For the Division Director
Environmental Health & Engineering

Ajaya Satyal

Ajaya K. Satyal, Environmental Manager
Air Pollution Control Section

FJG/AKS/lh

cc: David Knowles, P.E., Florida Department of Environmental Protection

APR ... 1996

STATE OF FLORIDA
DEPARTMENT OF HEALTH AND REHABILITATIVE SERVICES

ESE-WPB

March 26, 1996

James M. Meriwether
Environmental Health
and Safety Representative
Okeelanta Power Limited Partnership
P.O. Box 8
South Bay, Florida 33493

Re: Okeelanta Cogeneration Plant
AC 50-219413/PSD-FL-196.

Dear Mr. Meriwether:

This is in response to your letter dated March 15, 1996 requesting a review of the current situation and waiver for Boiler A and Boiler B from the requirement of testing within 60 days of reaching maximum continuous rating (MCR) condition. In the letter you have described difficulties in scheduling the compliance test because of various reasons including a need to modify the I.D. fans to test at the permitted capacity.

The Palm Beach County Public Health Unit (PBCPHU) has discussed your request with the Florida Department of Environmental Protection (FDEP) and grants a time extensions to meet the requirement to test within 60 days of reaching MCR to May 31, 1996.

Also, the compliance tests for all three boilers (A,B and C) shall be completed no later than 180 operational days after initial startup according to NSPS. From your previous correspondence, the start-up date for Boilers A, B and C were 1/10/96, 12/27/95, and 11/21/95 respectively. If the test cannot be performed within 90% of the permitted capacity, the Okeelanta Power Limited Partnership (OPLP) may consider testing at a lower capacity (thereafter the facility would be limited to 110% of the test rate) to meet this 180 days requirement.

Then once the plant is capable of operating at a maximum capacity, OPL would retest within 15 days to regain authority to operate at the permitted capacity. You are requested to provide the notification of compliance test at least 15 days prior to test date. The notification for CEM performance specification test shall be submitted 30 days in advance as required by the permit.

Please be advised that our approval of your request does not preclude third party challenges to this action. Therefore, OPLP should make a concerted effort to meet the federal requirements. Also, you are requested to provide the number of operational days logged for all three boilers since the startup date to PBCPHU within 14 days.

Please give us a call at (407) 355-3070, if you have any questions.

Sincerely,

For the Division Director
Environmental Health & Engineering

Ajaya K. Satyal, Environmental Manager
Air Pollution Control Section

FJG/AKS/lh

cc: David Knowles, P.E., South Florida District, FDEP
Jim Pennington, P.E., DARM, FDEP, Tallahassee

Table 1. Summary of Tire Derived Fuel Ash Chemical Analysis at Okeelanta Power L.P. Facility

Parameter	Reference 1 Analysis	Reference 2 Analysis	Average Value	ESP Control Eff. (%)	Ash Element Concentration (ppm)
	(% by wt.)	(% by wt.)			
Carbon	83.87	83.87	83.87	--	--
Hydrogen	7.09	7.09	7.09	--	--
Oxygen	2.17	2.17	2.17	--	--
Nitrogen	0.24	0.24	0.24	--	--
Sulfur (a)	1.23	1.23	1.23	--	--
Ash	4.78	4.78	4.78	--	--
	(ppm)	(ppm)	(ppm)		
Aluminum		900	900	99	18,640
Antimony	--	0.01	0.01	99	0
Arsenic	--	7	7	99	145
Barium	--	12	12	99	249
Beryllium	--	0.7	0.7	99	14
Cadmium	6	6	6	99	124
Chromium	97	100	98.5	99	2,040
Chlorine (b)	1,490	--	1490	0	31,172
Cobalt	--	500	500	99	10,356
Copper	--	950	950	99	19,676
Fluoride	10	--	10	0	209
Lead	65	--	65	99	1,346
Manganese	--	1,000	1000	99	20,711
Mercury	--	0.1	0.1	0	2
Molybdenum	--	70	70	99	1,450
Nickel	--	60	60	99	1,243
Selenium	--	105	105	99	2,175
Tin	--	0.01	0.01	99	0
Uranium	--	0.04	0.04	99	1
Vanadium (ppm)	--	1	1	99	21
Zinc (ppm)	15,200	13,000	14100	99	292,029

(a) Based on suflur capture achievable due to alkaline fly ash.
(b) Assumed to be emitted as hydrogen chloride (HCl).
References:

1. Waste Recovery, Inc. Bulletin 20.20.1C Dec. 1986.
2. Burning Tires for Fuel and Tire Pyrolysis: Air Implications. EPA-450/3-91-024.

Example Calculations

Ash Element Concentration (ppm) = (ppm of element * 1E-06 * Control Efficiency if applicable* 81,600 TPY of tires) ÷ (81,600 TY of tires * 4.78% ash/ton of tires) *1E06

Total aluminium present = 900 * 1E-06 X 81,000 TPY of tires = 73.44 Tons Al
Total aluminium collected in ESP = 73.44 Tons X 0.99 = 72.71 Ton Al
Total ash generated = 81,000 TPY of tires X 4.78% ash = 3,900 Tons ash
Aluminum concentration in ash = 72.71 ÷ 3,900 * 1E06 = 18,640 ppm

Table 2. Maximum Annual Emissions for Single Boiler at Okeelanta Power Cogeneration Facility

Regulated Pollutant	Biomass Emission Factor (lb/MMBtu)	Biomass Activity Factor (E12 Btu/yr)	Biomass Annual Emissions (TPY)	Alternate Fuel Emission Factor (lb/MMBtu)	Alternate Fuel Activity Factor (E12 Btu/yr)	Alternate Fuel Annual Emissions (TPY)	Total Annual Emissions (TPY)
			100% Biomass				
Particulate (TSP)	0.03	6.263	93.95	--	--	--	93.95 a
Particulate (PM10)	0.03	6.263	93.95	--	--	--	93.95 a
Sulfur dioxide - Bagasse	0.02	4.196 b	41.96	--	--	--	93.63
- Wood waste	0.05	2.067 c	51.67				
Nitrogen oxides	0.15	4.196	314.72	--	--	--	314.72
Carbon monoxide	0.35	4.196	734.34	--	--	--	734.34
VOC	0.06	4.196	125.89	--	--	--	125.89
Lead	2.5E-05	4.196	0.052	--	--	--	0.052
Mercury - Bagasse	6.30E-06	4.196 b	0.0132	--	--	--	0.0135
- Wood Waste	2.90E-07	2.067 c	0.00030				
Beryllium	--	--	--	--	--	--	--
Fluorides	--	--	--	--	--	--	--
Sulfuric acid mist	0.0006	6.263	1.88	--	--	--	1.88
			75.1% Biomass / 24.9% Fuel Oil				
Particulate (TSP)	0.03	4.428	66.42	0.03	1.468	22.02	88.44
Particulate (PM10)	0.03	4.428	66.42	0.03	1.468	22.02	88.44
Sulfur dioxide - Bagasse	0.02	2.967 b	29.67	0.05	1.468	36.70	102.90
- Wood waste	0.05	1.461 c	36.53				
Nitrogen oxides	0.15	4.428	332.10	0.15	1.468	110.10	442.20
Carbon monoxide	0.35	4.428	774.90	0.2	1.468	146.80	921.70
VOC	0.06	4.428	132.84	0.03	1.468	22.02	154.86
Lead	2.5E-05	4.428	0.055	8.9E-07	1.468	0.0007	0.056
Mercury - Bagasse	6.30E-06	2.967 b	0.0093	2.4E-06	1.468	0.0018	0.011
- Wood Waste	2.90E-07	1.461 c	0.00021				
Beryllium	--	--	--	3.5E-07	1.468	0.00026	0.00026
Fluorides	--	--	--	6.27E-06	1.468	0.0046	0.0046
Sulfuric acid mist	0.0006	4.428	1.33	0.0015	1.468	1.10	2.43
			75.1% Biomass / 24.9% Coal				
Particulate (TSP)	0.03	4.428	66.42	0.03	1.468	22.02	88.44
Particulate (PM10)	0.03	4.428	66.42	0.03	1.468	22.02	88.44
Sulfur dioxide - Bagasse	0.02	2.967 b	29.67	1.2	1.468	880.80	947.00
- Wood waste	0.05	1.461 c	36.53				
Nitrogen oxides	0.15	4.428	332.10	0.17	1.468	124.78	456.88
Carbon monoxide	0.35	4.428	774.90	0.2	1.468	146.80	921.70
VOC	0.06	4.428	132.84	0.03	1.468	22.02	154.86
Lead	2.5E-05	4.428	0.055	6.4E-05	1.468	0.0470	0.1023 a
Mercury - Bagasse	6.30E-06	2.967 b	0.0093	8.4E-06	1.468	0.0062	0.0157
- Wood Waste	2.90E-07	1.461 c	0.00021				
Beryllium	--	--	--	5.9E-06	1.468	0.0043	0.0043 a
Fluorides	--	--	--	0.024	1.468	17.62	17.62 a
Sulfuric acid mist	0.0006	4.428	1.33	0.036	1.468	26.42	27.75 a
			80% Biomass / 20% Tire-Derived Fuel				
Particulate (TSP)	0.03	3.733	56.00	0.03	2.530	37.95	93.95 a
Particulate (PM10)	0.03	3.733	56.00	0.03	2.530	37.95	93.95 a
Sulfur dioxide - Bagasse	0.02	2.501 b	25.01	0.8	2.530	1,012.00	1067.81 a
- Wood waste	0.05	1.232 c	30.80				
Nitrogen oxides	0.15	3.733	279.98	0.15	2.530	189.75	469.73 a
Carbon monoxide	0.35	3.733	653.28	0.35	2.530	442.75	1096.03 a
VOC	0.06	3.733	111.99	0.06	2.530	75.90	187.89 a
Lead	2.5E-05	3.733	0.047	4.2E-05	2.530	0.0531	0.0998
Mercury - Bagasse	6.30E-06	2.501 b	0.0079	6.5E-06	2.530	0.0082	0.0163 a
- Wood Waste	2.90E-07	1.232 c	0.00018				
Beryllium	--	--	--	4.5E-07	2.530	0.00057	0.00057
Fluorides	--	--	--	6.5E-04	2.530	0.82	0.8223
Sulfuric acid mist	0.0006	3.733	1.12	0.0069	2.530	8.73	9.85

a Denotes maximum annual emissions for any fuel scenario.
b Represents 67% of total heat input.
c Represents 33% of total heat input.
Note: No emissions of total reduced sulfur, asbestos, or vinyl chloride are expected.

Table 3. Maximum Annual Emissions of Hazardous/Toxic Air Pollutants per Boiler at Okeelanta Power Facility

Pollutant	Biomass Emission Factor (lb/MMBtu)	Biomass Activity Factor (E12 Btu/yr)	Biomass Annual Emissions (TPY)	Alternate Fuel Emission Factor (lb/MMBtu)	Alternate Fuel Activity Factor (E12 Btu/yr)	Alternate Fuel Annual Emissions (TPY)	Annual Emissions (TPY)
			100% Biomass				
Hazardous Air Pollutants							
Acetaldehyde	7.80E-04	6.263	2.44	--	--	--	2.44 a
Acetophenone	3.70E-06	6.263	0.012	--	--	--	0.012 a
Acrolein	6.50E-05	6.263	0.20	--	--	--	0.20 a
Antimony	UD	6.263	--	--	--	--	--
Arsenic	5.65E-05	6.263	0.18	--	--	--	0.18 a
Benzene	1.30E-03	6.263	4.07	--	--	--	4.07 a
Beryllium	--	6.263	--	--	--	--	--
Cadmium	8.40E-07	6.263	0.0026	--	--	--	0.0026
Carbon Disulfide	1.30E-04	6.263	0.41	--	--	--	0.41 a
Carbon Tetrachloride	6.00E-06	6.263	0.019	--	--	--	0.019 a
Chlorine	9.20E-04	6.263	2.88	--	--	--	2.88 a
Chloroform	4.70E-05	6.263	0.15	--	--	--	0.15 a
Chromium	5.55E-05	6.263	0.17	--	--	--	0.17 a
Chromium +6	1.11E-05	6.263	0.035	--	--	--	0.035 a
Cobalt	1.50E-07	6.263	4.7E-04	--	--	--	4.7E-04
Cumene	1.80E-05	6.263	0.06	--	--	--	0.06 a
Di - n - butyl Phthalate	5.80E-05	6.263	0.18	--	--	--	0.18 a
Ethyl Benzene	3.90E-06	6.263	0.012	--	--	--	0.012 a
Formaldehyde	1.30E-03	6.263	4.07	--	--	--	4.07 a
n Hexane	5.50E-04	6.263	1.72	--	--	--	1.72 a
Hydrogen Chloride	5.60E-04	6.263	1.75	--	--	--	1.75
Lead	2.50E-06	6.263	0.008	--	--	--	0.008
Manganese	9.50E-05	6.263	0.30	--	--	--	0.30
Mercury - Bagasse	6.30E-06	6.263	0.020	--	--	--	0.020
-Wood Waste	2.90E-07	6.263	0.0009	--	--	--	0.0009 a
Methanol	1.50E-03	6.263	4.70	--	--	--	4.70 a
Methyl Ethyl Ketone	1.20E-05	6.263	0.038	--	--	--	0.038 a
Methyl Isobutyl Ketone	8.60E-04	6.263	2.69	--	--	--	2.69 a
Methylene Chloride	1.50E-03	6.263	4.70	--	--	--	4.70 a
Napthalene	5.90E-04	6.263	1.85	--	--	--	1.85 a
Nickel	6.30E-06	6.263	0.020	--	--	--	0.020
Phenols	4.10E-05	6.263	0.13	--	--	--	0.13 a
Phosphorus	1.60E-06	6.263	0.0050	--	--	--	0.0050
POM (Polycyclic Org. Matter)	2.20E-07	6.263	0.0007	--	--	--	0.0007
Selenium	3.80E-06	6.263	0.012	--	--	--	0.012
Styrene	1.50E-05	6.263	0.047	--	--	--	0.047 a
2, 3, 7, 8 -TCDD (dioxin)	6.00E-12	6.263	1.9E-08	--	--	--	1.9E-08 a
Toluene	9.00E-05	6.263	0.28	--	--	--	0.28 a
1, 1, 1 Trichloroethane	1.70E-04	6.263	0.53	--	--	--	0.53 a
Trichloroethylene	7.60E-06	6.263	0.024	--	--	--	0.024 a
m&p Xylene	7.80E-06	6.263	0.024	--	--	--	0.024 a
o Xylene	2.60E-06	6.263	0.008	--	--	--	0.008 a
Total HAPs							33.750
112 (r) (non-HAPs)							
Ammonia	1.48E-02	6.263	46.35	--	--	--	46.35
Bromine	4.59E-05	6.263	0.14	--	--	--	0.14
Flourine	--	6.263	--	--	--	--	--
Other Air Toxics							
Barium	1.06E-04	6.263	0.33	--	--	--	0.33 a
Copper	7.25E-05	6.263	0.23	--	--	--	0.23
Indium	1.27E-04	6.263	0.40	--	--	--	0.40 a
Molybdenum	2.24E-07	6.263	0.0007	--	--	--	0.0007
Silver	1.40E-06	6.263	0.0044	--	--	--	0.0044 a
Thallium	UD	6.263	--	--	--	--	--
Tin	3.65E-08	6.263	1.1E-04	--	--	--	1.1E-04
Uranium	--	6.263	--	--	--	--	--
Vanadium	--	6.263	--	--	--	--	--
Zinc	4.24E-04	6.263	1.33	--	--	--	1.33
Zirconium	4.12E-07	6.263	0.0013	--	--	--	0.0013 a

Table 3. Maximum Annual Emissions of Hazardous/Toxic Air Pollutants per Boiler at Okeelanta Power Facility

Pollutant	Biomass Emission Factor (lb/MMBtu)	Biomass Activity Factor (E12 Btu/yr)	Biomass Annual Emissions (TPY)	Alternate Fuel Emission Factor (lb/MMBtu)	Alternate Fuel Activity Factor (E12 Btu/yr)	Alternate Fuel Annual Emissions (TPY)	Annual Emissions (TPY)
			75.1% Biomass / 24.9% Fuel Oil				
Hazardous Air Pollutants							
Acetaldehyde	7.80E-04	4.428	1.73	--	1.468	--	1.73
Acetophenone	3.70E-06	4.428	0.008	--	1.468	--	0.008
Acrolein	6.50E-05	4.428	0.14	--	1.468	--	0.14
Antimony	UD	4.428	--	2.40E-07	1.468	0.0002	0.0002
Arsenic	5.65E-05	4.428	0.13	4.20E-08	1.468	3.1E-05	0.13
Benzene	1.30E-03	4.428	2.88	--	1.468	--	2.88
Beryllium	--	4.428	--	3.50E-07	1.468	2.6E-04	0.0003
Cadmium	8.40E-07	4.428	0.0019	1.10E-07	1.468	8.1E-05	0.0019
Carbon Disulfide	1.30E-04	4.428	0.29	--	1.468	--	0.29
Carbon Tetrachloride	6.00E-06	4.428	0.013	--	1.468	--	0.013
Chlorine	9.20E-04	4.428	2.04	--	1.468	--	2.04
Chloroform	4.70E-05	4.428	0.10	--	1.468	--	0.10
Chromium	5.55E-05	4.428	0.12	6.70E-07	1.468	0.0005	0.12
Chromium +6	1.11E-05	4.428	0.025	1.30E-07	1.468	9.5E-05	0.025
Cobalt	1.50E-07	4.428	3.3E-04	1.20E-05	1.468	0.009	0.009
Cumene	1.80E-05	4.428	0.040	--	1.468	--	0.040
Di - n - butyl Phthalate	5.80E-05	4.428	0.13	--	1.468	--	0.13
Ethyl Benzene	3.90E-06	4.428	0.009	--	1.468	--	0.009
Formaldehyde	1.30E-03	4.428	2.88	4.05E-04	1.468	0.30	3.18
n Hexane	5.50E-04	4.428	1.22	--	1.468	--	1.22
Hydrogen Chloride	5.60E-04	4.428	1.24	6.37E-04	1.468	0.47	1.71
Lead	2.70E-06	4.428	0.006	2.70E-06	1.468	0.0020	0.008
Manganese	9.50E-05	4.428	0.21	1.40E-07	1.468	1.0E-04	0.21
Mercury - Bagasse	6.30E-06	4.428	0.014	2.40E-06	1.468	0.0018	0.016
-Wood Waste	2.90E-07	4.428	0.0006	--	1.468	--	0.0006
Methanol	1.50E-03	4.428	3.32	--	1.468	--	3.32
Methyl Ethyl Ketone	1.20E-05	4.428	0.027	--	1.468	--	0.027
Methyl Isobutyl Ketone	8.60E-04	4.428	1.90	--	1.468	--	1.90
Methylene Chloride	1.50E-03	4.428	3.32	--	1.468	--	3.32
Napthalene	5.90E-04	4.428	1.31	--	1.468	--	1.31
Nickel	6.30E-06	4.428	0.014	1.70E-06	1.468	0.0012	0.015
Phenols	4.10E-05	4.428	0.09	--	1.468	--	0.09
Phosphorus	1.60E-06	4.428	0.0035	5.81E-05	1.468	0.043	0.046
POM (Polycyclic Org. Matter)	2.20E-07	4.428	0.0005	8.40E-06	1.468	0.006	0.007 a
Selenium	3.80E-06	4.428	0.008	3.80E-07	1.468	2.8E-04	0.009
Styrene	1.50E-05	4.428	0.033	--	1.468	--	0.033
2, 3, 7, 8 -TCDD (dioxin)	6.00E-12	4.428	1.3E-08	--	1.468	--	1.3E-08
Toluene	9.00E-05	4.428	0.20	--	1.468	--	0.20
1, 1, 1 Trichloroethane	1.70E-04	4.428	0.38	--	1.468	--	0.38
Trichloroethylene	7.60E-06	4.428	0.017	--	1.468	--	0.017
m & p Xylene	7.80E-06	4.428	0.017	--	1.468	--	0.017
o Xylene	2.60E-06	4.428	0.006	--	1.468	--	0.006
Total HAPs							24.691
112 (r) (non-HAPs)							
Ammonia	1.48E-02	4.428	32.77	1.48E-02	1.468	10.86	43.63
Bromine	4.59E-05	4.428	0.10	6.97E-07	1.468	0.0005	0.10
Flourine	--	4.428	--	6.30E-06	1.468	0.0046	0.0046
Other Air Toxics							
Barium	1.06E-04	4.428	0.23	6.69E-07	1.468	0.0005	0.23
Copper	7.24E-05	4.428	0.16	4.20E-05	1.468	0.031	0.19
Indium	1.27E-04	4.428	0.28	--	1.468	--	0.28
Molybdenum	2.24E-07	4.428	0.0005	4.88E-07	1.468	3.6E-04	0.0009
Silver	1.40E-06	4.428	0.0031	--	1.468	--	0.0031
Thallium	UD	4.428	--	--	1.468	--	--
Tin	3.65E-08	4.428	8.1E-05	3.30E-06	1.468	0.0024	0.0025
Uranium	--	4.428	--	--	1.468	--	--
Vanadium	--	4.428	--	--	1.468	--	--
Zinc	4.24E-04	4.428	0.94	6.69E-06	1.468	0.005	0.94
Zirconium	4.12E-07	4.428	0.0009	--	1.468	--	0.0009

Table 3. Maximum Annual Emissions of Hazardous/Toxic Air Pollutants per Boiler at Okeelanta Power Facility

Pollutant	Biomass Emission Factor (lb/MMBtu)	Biomass Activity Factor (E12 Btu/yr)	Biomass Annual Emissions (TPY)	Alternate Fuel Emission Factor (lb/MMBtu)	Alternate Fuel Activity Factor (E12 Btu/yr)	Alternate Fuel Annual Emissions (TPY)	Annual Emissions (TPY)
			74.9% Biomass / 24.9% Coal				
Hazardous Air Pollutants							
Acetaldehyde	7.80E-04	4.428	1.73	--	1.468	--	1.73
Acetophenone	3.70E-06	4.428	0.008	--	1.468	--	0.008
Acrolein	6.50E-05	4.428	0.14	--	1.468	--	0.14
Antimony	UD	4.428	--	3.49E-05	1.468	0.026	0.026 a
Arsenic	5.65E-05	4.428	0.13	5.40E-06	1.468	0.0040	0.13
Benzene	1.30E-03	4.428	2.88	--	1.468	--	2.88
Beryllium	--	4.428	--	3.50E-07	1.468	2.6E-04	2.6E-04
Cadmium	8.40E-07	4.428	0.0019	4.30E-07	1.468	3.2E-04	0.0022
Carbon Disulfide	1.30E-04	4.428	0.29	--	1.468	--	0.29
Carbon Tetrachloride	6.00E-06	4.428	0.013	--	1.468	--	0.013
Chlorine	9.20E-04	4.428	2.04	--	1.468	--	2.04
Chloroform	4.70E-05	4.428	0.10	--	1.468	--	0.10
Chromium	5.55E-05	4.428	0.12	1.66E-05	1.468	0.012	0.14
Chromium +6	1.11E-05	4.428	0.025	3.10E-06	1.468	0.0023	0.027
Cobalt	1.50E-07	4.428	3.3E-04	7.20E-05	1.468	0.053	0.053
Cumene	1.80E-05	4.428	0.040	--	1.468	--	0.040
Di - n - butyl Phthalate	5.80E-05	4.428	0.13	--	1.468	--	0.13
Ethyl Benzene	3.90E-06	4.428	0.009	--	1.468	--	0.009
Formaldehyde	1.30E-03	4.428	2.88	2.20E-04	1.468	0.16	3.04
n Hexane	5.50E-04	4.428	1.22	--	1.468	--	1.22
Hydrogen Chloride	5.60E-04	4.428	1.24	7.90E-02	1.468	57.99	59.23
Lead	2.70E-06	4.428	0.006	5.10E-06	1.468	--	0.006
Manganese	9.50E-05	4.428	0.21	3.10E-07	1.468	2.3E-04	0.21
Mercury - Bagasse	6.30E-06	4.428	0.014	8.40E-06	1.468	0.0062	0.020 a
-Wood Waste	2.90E-07	4.428	0.0006	--	1.468	--	0.0006
Methanol	1.50E-03	4.428	3.32	--	1.468	--	3.32
Methyl Ethyl Ketone	1.20E-05	4.428	0.027	--	1.468	--	0.027
Methyl Isobutyl Ketone	8.60E-04	4.428	1.90	--	1.468	--	1.90
Methylene Chloride	1.50E-03	4.428	3.32	--	1.468	--	3.32
Napthalene	5.90E-04	4.428	1.31	--	1.468	--	1.31
Nickel	6.30E-06	4.428	0.014	1.00E-05	1.468	0.0073	0.021
Phenols	4.10E-05	4.428	0.09	--	1.468	--	0.09
Phosphorus	1.60E-06	4.428	0.0035	8.60E-04	1.468	0.63	0.635 a
POM (Polycyclic Org. Matter)	2.20E-07	4.428	0.0005	--	1.468	--	0.0005
Selenium	3.80E-06	4.428	0.008	5.34E-05	1.468	0.039	0.048
Styrene	1.50E-05	4.428	0.033	--	1.468	--	0.033
2, 3, 7, 8 TCDD (dioxin)	6.00E-12	4.428	1.3E-08	--	1.468	--	1.3E-08
Toluene	9.00E-05	4.428	0.20	--	1.468	--	0.20
1, 1, 1 Trichloroethane	1.70E-04	4.428	0.38	--	1.468	--	0.38
Trichloroethylene	7.60E-06	4.428	0.017	--	1.468	--	0.017
m & p Xylene	7.80E-06	4.428	0.017	--	1.468	--	0.017
o Xylene	2.60E-06	4.428	0.006	--	1.468	--	0.006
Total HAPs							82.791
112 (r) (non-HAPs)							
Ammonia	1.48E-02	4.428	32.77	4.80E-02	1.468	35.23	68.0
Bromine	4.59E-05	4.428	0.10	7.90E-04	1.468	0.58	0.68 a
Flourine	--	4.428	--	6.30E-06	1.468	0.0046	0.00
Other Air Toxics							
Barium	1.06E-04	4.428	0.23	7.44E-05	1.468	0.055	0.29
Copper	7.24E-05	4.428	0.16	--	1.468	--	0.16
Indium	1.27E-04	4.428	0.28	--	1.468	--	0.28
Molybdenum	2.24E-07	4.428	0.0005	8.83E-06	1.468	0.0065	0.0070
Silver	1.40E-06	4.428	0.0031	--	1.468	--	0.0031
Thallium	UD	4.428	--	--	1.468	--	--
Tin	3.65E-08	4.428	8.1E-05	8.83E-06	1.468	0.0065	0.0066 a
Uranium	--	4.428	--	--	1.468	--	--
Vanadium	--	4.428	--	--	1.468	--	--
Zinc	4.24E-04	4.428	0.94	3.49E-04	1.468	0.26	1.19
Zirconium	4.12E-07	4.428	0.0009	--	1.468	--	0.0009

Table 3. Maximum Annual Emissions of Hazardous/Toxic Air Pollutants per Boiler at Okeelanta Power Facility

Pollutant	Biomass Emission Factor (lb/MMBtu)	Biomass Activity Factor (E12 Btu/yr)	Biomass Annual Emissions (TPY)	Alternate Fuel Emission Factor (lb/MMBtu)	Alternate Fuel Activity Factor (E12 Btu/yr)	Alternate Fuel Annual Emissions (TPY)	Annual Emissions (TPY)
			59.6% Biomass / 40.4% Tire-Derived Fuel				
Hazardous Air Pollutants							
Acetaldehyde	7.80E-04	3.733	1.46	--	2.530	--	1.46
Acetophenone	3.70E-06	3.733	0.007	--	2.530	--	0.007
Acrolein	6.50E-05	3.733	0.12	--	2.530	--	0.12
Antimony	UD	3.733	--	6.45E-09	2.530	8.2E-06	8.2E-06
Arsenic	5.65E-05	3.733	0.11	4.52E-05	2.530	0.057	0.16
Benzene	1.30E-03	3.733	2.43	--	2.530	--	2.426
Beryllium	--	3.733	--	--	2.530	--	--
Cadmium	8.40E-07	3.733	0.0016	3.87E-06	2.530	0.0049	0.0065 a
Carbon Disulfide	1.30E-04	3.733	0.24	--	2.530	--	0.24
Carbon Tetrachloride	6.00E-06	3.733	0.011	--	2.530	--	0.011
Chlorine	9.20E-04	3.733	1.72	--	2.530		1.72
Chloroform	4.70E-05	3.733	0.09	--	2.530	--	0.09
Chromium	5.55E-05	3.733	0.10	6.45E-06	2.530	0.0082	0.11
Chromium +6	1.11E-05	3.733	0.021	--	2.530	--	0.021
Cobalt	1.50E-07	3.733	2.8E-04	3.23E-04	2.530	0.41	0.41 a
Cumene	1.80E-05	3.733	0.034	--	2.530	--	0.034
Di - n - butyl Phthalate	5.80E-05	3.733	0.11	--	2.530	--	0.11
Ethyl Benzene	3.90E-06	3.733	0.007	--	2.530	--	0.007
Formaldehyde	1.30E-03	3.733	2.43	4.05E-04	2.530	0.51	2.94
n Hexane	5.50E-04	3.733	1.03	--	2.530	--	1.03
Hydrogen Chloride	5.60E-04	3.733	1.05	9.61E-02	2.530	121.6	122.6 a
Lead	2.70E-06	3.733	0.005	4.20E-05	2.530	5.3E-02	0.058 a
Manganese	9.50E-05	3.733	0.18	6.45E-04	2.530	0.82	0.99 a
Mercury - Bagasse	6.30E-06	3.733	0.012	6.50E-06	2.530	8.2E-03	0.020
-Wood Waste	2.90E-07	3.733	0.0005	--	2.530	--	0.0005
Methanol	1.50E-03	3.733	2.80	--	2.530	--	2.80
Methyl Ethyl Ketone	1.20E-05	3.733	0.022	--	2.530	--	0.022
Methyl Isobutyl Ketone	8.60E-04	3.733	1.61	--	2.530	--	1.61
Methylene Chloride	1.50E-03	3.733	2.80	--	2.530	--	2.80
Napthalene	5.90E-04	3.733	1.10	--	2.530	--	1.10
Nickel	6.30E-06	3.733	0.012	3.87E-05	2.530	0.049	0.061 a
Phenols	4.10E-05	3.733	0.08	--	2.530	--	0.08
Phosphorus	1.60E-06	3.733	0.0030	--	2.530	--	0.0030
POM (Polycyclic Org. Matter)	2.20E-07	3.733	0.0004	--	2.530	--	0.0004
Selenium	3.80E-06	3.733	0.007	6.77E-04	2.530	0.86	0.86 a
Styrene	1.50E-05	3.733	0.028	--	2.530	--	0.028
2, 3, 7, 8 TCDD (dioxin)	6.00E-12	3.733	1.1E-08	--	2.530	--	1.1E-08
Toluene	9.00E-05	3.733	0.17	--	2.530	--	0.17
1, 1, 1 Trichloroethane	1.70E-04	3.733	0.32	--	2.530	--	0.32
Trichloroethylene	7.60E-06	3.733	0.014	--	2.530	--	0.014
m & p Xylene	7.80E-06	3.733	0.015	--	2.530	--	0.015
o Xylene	2.60E-06	3.733	0.005	--	2.530	--	0.005
Total HAPs							144.457
112 (r) (non-HAPs)							
Ammonia	1.48E-02	3.733	27.62	4.80E-02	2.530	60.72	88.3 a
Bromine	4.59E-05	3.733	0.09	--	2.530	--	0.09
Flourine	--	3.733	--	6.50E-03	2.530	8.2225	8.22 a
Other Air Toxics							
Barium	1.06E-04	3.733	0.20	7.74E-06	2.530	0.0098	0.21
Copper	7.24E-05	3.733	0.14	6.15E-04	2.530	0.78	0.91 a
Indium	1.27E-04	3.733	0.24	--	2.530	--	0.24
Molybdenum	2.24E-07	3.733	0.0004	4.52E-05	2.530	0.057	0.058 a
Silver	1.40E-06	3.733	0.0026	--	2.530	--	0.0026
Thallium	UD	3.733	--	--	2.530	--	--
Tin	3.65E-08	3.733	6.8E-05	6.45E-09	2.530	8.16E-06	7.6E-05
Uramium	--	3.733	--	2.58E-08	2.530	3.26E-05	3.3E-05 a
Vanadium	--	3.733	--	6.45E-07	2.530	0.00082	8.2E-04 a
Zinc	4.24E-04	3.733	0.79	9.81E-03	2.530	12.41	13.20 a
Zirconium	4.12E-07	3.733	0.0008	--	2.530	--	0.0008

a Denotes maximum annual emissions for any fuel scenario.

Note: UD = undetectable levels in gas stream.

Table 4. Maximum Fuel Usage and Heat Input Rates per Boiler, Okeelanta Power Limited Partnership

Fuel	Heat Input	Heat Transfer Efficiency (%)	Heat Output	Fuel Firing Rate	
	Maximum Short-Term (per boiler)				
	(MMBtu/hr)		(MMBtu/hr)		
Biomass - Bagasse	715	68	486	168,235	lb/hr^a
- Wood Was	715	68	486	130,000	lb/hr^b
No. 2 Fuel Oil	490	85	417	3,551	gal/hr
Coal	490	85	417	40,833	lb/hr
Tire-Derived Fuel	340	68	231	21,935	lb/hr
	Annual Average (per boiler)				
	(Btu/yr)		(Btu/yr)		
NORMAL OPERATIONS					
Biomass	6.263E+12	68	4.259E+12	736,871	TPY^a
No. 2 Fuel Oil	0	85	0	0	gal/yr
Coal	0	85	0	0	TPY
Tire-Derived Fuel	0	68	0	0	TPY
TOTAL	6.263E+12		4.259E+12		
24.9% OIL FIRING					
Biomass	4.428E+12	68	3.011E+12	520,941	TPY
No. 2 Fuel Oil	1.468E+12	85	1.248E+12	10,638,685	gal/yr
Coal	0	85	0	0	TPY
Tire-Derived Fuel	0	68	0	0	TPY
TOTAL	5.896E+12		4.259E+12		
24.9% COAL FIRING					
Biomass	4.428E+12	68	3.011E+12	520,941	TPY
No. 2 Fuel Oil	0	85	0	0	gal/yr
Coal	1.468E+12	85	1.248E+12	61,172	TPY
Tire-Derived Fuel	0	68	0	0	TPY
TOTAL	5.896E+12		4.259E+12		
40.4% TIRE-DERIVED FUEL					
Biomass	3.733E+12	68	2.538E+12	339,364	TPY^b
No. 2 Fuel Oil	0	85	0	0	gal/yr
Coal	0	85	0	0	TPY
Tire-Derived Fuel	2.530E+12	68	1.720E+12	81,613	TPY
TOTAL	6.263E+12		4.259E+12		

^a Based on bagasse firing.
^b Based on wood waste firing.

Notes: Total heat output required = 4.259E+12 Btu/yr total both boilers.
Fuels may be burned in combination, not to exceed total heat outputs.
Based on fuel heating values as follows:
Bagasse - 4,250 Btu/lb
Wood Waste - 5,500 Btu/lb
No. 2 Fuel Oil - 138,000 Btu/gal
Coal - 12,000 Btu/lb
Tire-derived fuel - 15,500 Btu/lb

Basis for annual heat input

Grinding season: 440,000 lb/hr steam; 658 MMBtu/hr/boiler; 140 crop days
Heat input= 4.4218E+12 Btu/yr

Non-grinding season: 273,150 lb/hr steam; 369 MMBtu/hr/boiler; 225 crop days; 95% capacity
Heat input= 3.7859E+12 Btu/yr

Totals: Heat input= 8.2077E+12 Btu/yr

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: SO2

2. Total Percent Efficiency of Control: %

3. Potential Emissions: 588 lb/hour 1,067.8 tons/year

4. Synthetically Limited? [x] Yes [ ] No

5. Range of Estimated Fugitive/Other Emissions:

[ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/yr

6. Emission Factor: 1.2 lb/MMBtu

Reference: 40 CFR 60 Subpart Da

7. Emissions Method Code:

[x] 0 [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5

8. Calculation of Emissions (limit to 600 characters):

1.2 lb/MMBtu x 490 MMBtu/hr = 588.0 lb/hr

9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters).

1,154.3 TPY total for all three boilers.

Emissions Unit Information Section 14 **of** 18

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code:	**OTHER**
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units:	**1.2** **lb/MMBtu**
4. Equivalent Allowable Emissions:	**588** lb/hour **880.8** tons/year
5. Method of Compliance (limit to 60 characters):	**Limit coal burning to 24.9% for any single boiler.**
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):	**Basis for Allowable Emissions Code: NSPS. Based on coal firing.**

B.

1. Basis for Allowable Emissions Code:	**RULE**
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units:	**0.05** **lb/MMBtu**
4. Equivalent Allowable Emissions:	**22.5** lb/hour **36.7** tons/year
5. Method of Compliance (limit to 60 characters):	**Limit fuel oil burning to 24.9% for any single boiler.**
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):	**Based on No.2 fuel oil firing and BACT.**

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code: OTHER	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 0.1 lb/MMBtu	
4. Equivalent Allowable Emissions:	71.5 lb/hour 93.6 tons/year
5. Method of Compliance (limit to 60 characters): Continuous SO2 monitor	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Requested Allowable Emissions: 0.1 lb/MMBtu 24-hr avg; Annual- 0.02 lb/MMBtu for bagasse, 0.05 lb/MMBtu for wood. Based on biomass firing.	

B.

1. Basis for Allowable Emissions Code: OTHER	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 1.2 lb/MMBtu	
4. Equivalent Allowable Emissions:	408 lb/hour 1,012 tons/year
5. Method of Compliance (limit to 60 characters): Continuous SO2 monitor.	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Requested Allowable Emissions: 1.2 lb/MMBtu, 24-hr avg.; 0.8 lb/MMBtu, annual avg. Based on tire-derived fuel firing. Annual TPY: 81,613 TPY TDF x 15,500 Btu/lb x 0.8lb/MMBtu = 1,012.0 TPY	

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: **NOx**
2. Total Percent Efficiency of Control: %
3. Potential Emissions: **107.3** lb/hour **470** tons/year
4. Synthetically Limited? [**x**] Yes [ ] No
5. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/yr
6. Emission Factor: **0.15 lb/MMBtu** Reference: **NOx control system**
7. Emissions Method Code: [**x**] 0 [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5
8. Calculation of Emissions (limit to 600 characters): **0.15 lb/MMBtu x 715 MMBtu/hr = 107.3 lb/hr**
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): **862.5 TPY total for all boilers**

Emissions Unit Information Section 14 **of** 18

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code:	**ESCPSD**
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units:	**0.15** **lb/MMBtu**
4. Equivalent Allowable Emissions:	**107.3** lb/hour **470** tons/year
5. Method of Compliance (limit to 60 characters):	**Annual stack test using EPA Method 7 or 7E**
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):	**Based on biomass firing**

B.

1. Basis for Allowable Emissions Code:	**ESCPSD**
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units:	**0.15** **lb/MMBtu**
4. Equivalent Allowable Emissions:	**67.5** lb/hour **110.1** tons/year
5. Method of Compliance (limit to 60 characters):	**Limit fuel oil burning to 24.9% for any single boiler.**
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):	**Based on No.2 fuel oil firing**

Emissions Unit Information Section 14 of 18
Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code:	**ESCPSD**
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units:	**0.17** **lb/MMBtu**
4. Equivalent Allowable Emissions:	**83.3** lb/hour **124.8** tons/year
5. Method of Compliance (limit to 60 characters):	**Limit coal burning to 24.9% for any single boiler.**
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):	**Based on coal firing**

B.

1. Basis for Allowable Emissions Code:	**ESCPSD**
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units:	**0.15** **lb/MMBtu**
4. Equivalent Allowable Emissions:	**51** lb/hour **189.8** tons/year
5. Method of Compliance (limit to 60 characters):	**Annual stack test using EPA Method 7 or 7E.**
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):	**Based on tire-derived fuel firing. Limit TDF firing to 40.4% on a weight basis.**

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: CO

2. Total Percent Efficiency of Control: %

3. Potential Emissions: **250.3** lb/hour **1,096.3** tons/year

4. Synthetically Limited? [x] Yes [ ] No

5. Range of Estimated Fugitive/Other Emissions:

[ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/yr

6. Emission Factor: **0.35 lb/MMBtu**

Reference: **Boiler Design**

7. Emissions Method Code:

[x] 0 [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5

8. Calculation of Emissions (limit to 600 characters):

0.35 lb/MMBtu x 715 MMBtu/hr = 250.3 lb/hr

9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters):

2,012.5 TPY total for all boilers

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code:	**OTHER**
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units:	**0.35** **lb/MMBtu**
4. Equivalent Allowable Emissions:	**250.3** lb/hour **1,096.3** tons/year
5. Method of Compliance (limit to 60 characters):	**EPA Method 10 annually**
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):	**Based on biomass firing**

B.

1. Basis for Allowable Emissions Code:	**OTHER**
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units:	**0.2** **lb/MMBtu**
4. Equivalent Allowable Emissions:	**90** lb/hour **146.8** tons/year
5. Method of Compliance (limit to 60 characters):	**Limit fuel oil burning to 24.9% for any single boiler.**
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):	**Based on No.2 fuel oil firing**

A.

1. Basis for Allowable Emissions Code:	OTHER
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units:	0.2 lb/MMBtu
4. Equivalent Allowable Emissions:	98 lb/hour 146.8 tons/year
5. Method of Compliance (limit to 60 characters):	EPA Method 10 annually.
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):	Based on coal firing. Limit coal burning to 24.9% each boiler.

B.

1. Basis for Allowable Emissions Code:	OTHER
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units:	0.35 lb/MMBtu
4. Equivalent Allowable Emissions:	63 lb/hour 442.8 tons/year
5. Method of Compliance (limit to 60 characters):	EPA Method 10 annually.
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):	Based on tire-derived fuel firing. TDF firing limited to 40.4% for each boiler.

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: VOC
2. Total Percent Efficiency of Control: %
3. Potential Emissions: 42.9 lb/hour 187.9 tons/year
4. Synthetically Limited? [x] Yes [ ] No
5. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/yr
6. Emission Factor: 0.06 lb/MMBtu Reference: Boiler Design
7. Emissions Method Code: [x] 0 [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5
8. Calculation of Emissions (limit to 600 characters): 0.06 lb/MMBtu x 715 MMBtu/hr = 42.9 lb/hr
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): Based on biomass firing. Total for all three boilers = 345.0 TPY

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code:	**ESCNAA**
2. Future Effective Date of Allowable Emissions.	
3. Requested Allowable Emissions and Units:	**0.03** **lb/MMBtu**
4. Equivalent Allowable Emissions:	**14.7** lb/hour **22** tons/year
5. Method of Compliance (limit to 60 characters):	**Limit coal burning to 24.9% for any single boiler**
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):	**Based on coal firing**

B.

1. Basis for Allowable Emissions Code:	**ESCNAA**
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units:	**0.06** **lb/MMBtu**
4. Equivalent Allowable Emissions:	**10.8** lb/hour **75.9** tons/year
5. Method of Compliance (limit to 60 characters):	**EPA Method 25 or 25A annually**
6 Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):	**Based on tire-derived fuel firing. TDF firing limited to 40.4% for any single boiler(weight basis).**

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code:	**ESCNAA**
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units:	**0.06** **lb/MMBtu**
4. Equivalent Allowable Emissions:	**42.9** lb/hour **187.9** tons/year
5. Method of Compliance (limit to 60 characters):	**Annual stack test using EPA Method 25 or 25A**
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):	**Based on biomass firing.**

B.

1. Basis for Allowable Emissions Code:	**ESCNAA**
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units:	**0.03** **lb/MMBtu**
4. Equivalent Allowable Emissions:	**13.5** lb/hour **22** tons/year
5. Method of Compliance (limit to 60 characters):	**See Comment**
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):	**Based on No.2 fuel oil firing. Limit No.2 fuel oil burning to 24.9% for any single boiler.**

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: PB
2. Total Percent Efficiency of Control: %
3 Potential Emissions: 0.031 lb/hour 0.1 tons/year
4. Synthetically Limited? [x] Yes [ ] No
5. Range of Estimated Fugitive/Other Emissions [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/yr
6. Emission Factor: 6.4 E-05 lb/MMBtu Reference: Permit
7. Emissions Method Code [x] 0 [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5
8. Calculation of Emissions (limit to 600 characters): 6.4 E-05 lb/MMBtu x 490 MMBtu/hr = 0.031 lb/hr.
9 Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): Max emissions due to coal firing. Facility emissions are 0.173 TPY total all boilers.

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code:	OTHER
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units:	2.5 E-05 lb/MMBtu
4. Equivalent Allowable Emissions:	0.018 lb/hour 0.052 tons/year
5. Method of Compliance (limit to 60 characters):	Stack test using EPA Method 12 once every 5 years.
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):	Biomass Firing

B.

1. Basis for Allowable Emissions Code:	OTHER
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units:	8.9 E-07 lb/MMBtu
4. Equivalent Allowable Emissions:	0.0004 lb/hour 0.0007 tons/year
5. Method of Compliance (limit to 60 characters):	Stack test using EPA Method 12 once every 5 years.
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):	No.2 fuel oil firing

Emissions Unit Information Section 14 **of** 18

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code: **OTHER**
2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: **6.4 E-05 lb/MMBtu**
4. Equivalent Allowable Emissions: **0.031** lb/hour **0.047** tons/year
5. Method of Compliance (limit to 60 characters): **Stack test using EPA Method 12 once every 5 years.**
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): **Coal Firing**

B.

1. Basis for Allowable Emissions Code: **OTHER**
2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: **4.2 E-05 lb/MMBtu**
4. Equivalent Allowable Emissions: **0.0143** lb/hour **0.053** tons/year
5. Method of Compliance (limit to 60 characters): **Stack test using EPA Method 12 once every 5 years.**
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): **TDF firing**

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: SAM
2. Total Percent Efficiency of Control: %
3. Potential Emissions: 17.6 lb/hour 27.8 tons/year
4. Synthetically Limited? [X] Yes [ ] No
5. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/yr
6. Emission Factor: 0.036 lb/MMBtu Reference: Permit
7. Emissions Method Code: [X] 0 [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5
8. Calculation of Emissions (limit to 600 characters): 0.036 lb/MMBtu x 490 MMBtu/hr = 17.6 lb/hr
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): Based on coal firing, 34.6 TPY total for all boilers.

A.

1. Basis for Allowable Emissions Code:	OTHER
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units:	0.01 lb/MMBtu
4. Equivalent Allowable Emissions:	17.6 lb/hour 26.4 tons/year
5. Method of Compliance (limit to 60 characters):	EPA Method 8 once every 5 years.
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):	Based on coal firing

B.

1. Basis for Allowable Emissions Code:	OTHER
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units:	0.01 lb/MMBtu
4. Equivalent Allowable Emissions:	3.4 lb/hour 8.73 tons/year
5. Method of Compliance (limit to 60 characters):	EPA Method 8 once every 5 years.
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):	Based on tire-derived fuel firing.

Emissions Unit Information Section 14 **of** 18
Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code:	**OTHER**
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units:	**0.003** **lb/MMBtu**
4. Equivalent Allowable Emissions:	**2.2** lb/hour **1.9** tons/year
5. Method of Compliance (limit to 60 characters):	**EPA Method 8 once every 5 years.**
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):	**Based on biomass firing**

B.

1. Basis for Allowable Emissions Code:	**OTHER**
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units:	**0.0015** **lb/MMBtu**
4. Equivalent Allowable Emissions:	**0.74** lb/hour **1.1** tons/year
5. Method of Compliance (limit to 60 characters):	**EPA Method 8 once every 5 years.**
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):	**Based on No.2 fuel oil firing.**

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: FL
2. Total Percent Efficiency of Control: %
3. Potential Emissions: 11.8 lb/hour 17.6 tons/year
4. Synthetically Limited? [X] Yes [ ] No
5. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/yr
6. Emission Factor: 0.024 lb/MMBtu Reference: Permit
7. Emissions Method Code: [X] 0 [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5
8. Calculation of Emissions (limit to 600 characters): **0.024 lb/MMBtu x 490 MMBtu/hr = 11.8 lb/hr**
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): **Based on coal firing. Total emissions from all three boilers limited to 21.23 TPY.**

Emissions Unit Information Section 14 of 18
Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code:	**OTHER**
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units:	**6.3 E-06 lb/MMBtu**
4. Equivalent Allowable Emissions:	**0.0031** lb/hour **0.0046** tons/year
5. Method of Compliance (limit to 60 characters):	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):	**Based on No.2 fuel oil firing.**

B.

1. Basis for Allowable Emissions Code:	**OTHER**
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units:	**0.024 lb/MMBtu**
4. Equivalent Allowable Emissions:	**11.8** lb/hour **17.6** tons/year
5. Method of Compliance (limit to 60 characters):	**EPA Method 13A or 13B once every 5 years.**
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):	**Based on coal firing**

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code:	**OTHER**
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units:	**6.5 E-04 lb/MMBtu**
4. Equivalent Allowable Emissions:	**0.22** lb/hour **0.82** tons/year
5. Method of Compliance (limit to 60 characters):	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):	**Based on TDF firing.**

B.

1. Basis for Allowable Emissions Code:	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units:	
4. Equivalent Allowable Emissions:	lb/hour tons/year
5. Method of Compliance (limit to 60 characters):	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):	

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: **H021**
2. Total Percent Efficiency of Control: **99** %
3. Potential Emissions. **0.0029** lb/hour **0.0043** tons/year
4. Synthetically Limited? [**X**] Yes [ ] No
5. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/yr
6. Emission Factor: Reference: **Permit**
7. Emissions Method Code: [**X**] 0 [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5
8. Calculation of Emissions (limit to 600 characters): **490 MMBtu/hr x 5.9 E-06 lb/MMBtu = 0.0029 lb/hr**
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): **Max lb/hr based on coal firing. Total emissions all three boilers limited to 0.0052 TPY.**

A.

1. Basis for Allowable Emissions Code:	OTHER
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units:	5.9 E-06 lb/MMBtu
4. Equivalent Allowable Emissions:	0.0029 lb/hour 0.0043 tons/year
5. Method of Compliance (limit to 60 characters):	Stack testing using EPA Method 104
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):	Based on coal firing

B.

1. Basis for Allowable Emissions Code:	OTHER
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units:	3.5 E-07 lb/MMBtu
4. Equivalent Allowable Emissions:	0.0002 lb/hour 0.0002 tons/year
5. Method of Compliance (limit to 60 characters):	Stack testing using EPA Method 104
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):	Based on No.2 fuel oil firing.

Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

June 17, 1996

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Dennis Space
General Manager
Okeelanta Power Limited Partnership
Post Office Box 8
South Bay, Florida 33493

Re: Okeelanta Power Limited Partnership
Tire Derived Fuel Permit Amendment
Permit File No. AC50-219413, PSD-FL-196A

Dear Mr. Space:

Further to our completeness letter dated June 12 please address the attached comments submitted by the Palm Beach County Health Unit (PBCHU) with the information requested by the Department.

If you have any questions regarding this supplementary request, please call Jeff Koerner of the PBCHU at (407) 355-4549 or Syed Arif at (904) 488-1344.

Sincerely,

A. A. Linero, P.E.
Administrator
New Source Review Section

AAL/sa/t

cc: D. Knowles, SD
J. Koerner, PBCHU
J. Harper, EPA
J. Bunyak, NPS
D. Buff, KBN

P 339 251 110

US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided.
Do not use for International Mail *(See reverse)*

Sent to Dennis Space	
Street & Number Okeelanta Power	
Post Office, State, & ZIP Code S. Bay, FL	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	6-17-96

PS Form **3800**, April 1995

NO GREEN CARD

P 339 251 111

US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided.
Do not use for International Mail *(See reverse)*

Sent to Don Schaberg	
Street & Number Osceola Power, LP	
Post Office, State, & ZIP Code Pahokee, FL	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	6-17-96

PS Form **3800**, April 1995

Fold at line over top of envelope to the right of the return address

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Don Schaberg, Gen. Mgr.
Osceola Power, LP
PO Box 606
Pahokee, FL 33476

4a. Article Number P 339 251 111

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery 6-20-96

5. Signature (Addressee)

8. Addressee's Address (Only if requested and fee is paid)

6. Signature (Agent) Calvin Brisco

PS Form **3811**, December 1991 *U.S. GPO: 1993—352-714 **DOMESTIC RETURN RECEIPT**

Is your RETURN ADDRESS completed on the reverse side?

Thank you for using Return Receipt Service.

HRS / PALM BEACH COUNTY PUBLIC HEALTH UNIT
DIVISION OF ENVIRONMENTAL HEALTH AND ENGINEERING
Air Pollution Control Section

FACSIMILE TRANSMITTAL COVER SHEET

DATE: June 13, 1996

FROM: Jeff Koerner, PE JK
Phone #: (407) 355-4549 [Sun Com: 273-4549]
FAX #: (407) 355-2442

TO: Syed Arif, Engineer IV
New Source Review Section
DEP - Bureau of Air Regulation
142600 Blair Stone Road
Tallahassee, FL 32399-2400
FAX #: (904) 922-6979

Subject: Comments on the Recent PSD Permit Modifications
Okeelanta Power Corporation and Osceola Power Corporation

Total Pages: 2 (including this cover sheet)

I apologize for not submitting these comments sooner. We did not receive the applications until May 31st and I have been out of the office for most of that time.

Palm Beach County Public Health Unit
Comments on New PSD Permit Modifications for Tire-Derived Fuel (TDF)
Osceola Power Corporation
Okeelanta Power Corporation

(1) Will the facility receive any whole tires? Does the facility plan to install any additional equipment that may be necessary to chip, screen, process, and handle whole tires or chipped tires?

(2) Recent inspections by the Health Unit indicate continued problems with the fuel handling systems. In particular, several sections of ductwork appear to have been damaged by the high velocities at which the fuels are being fed. Also, frequent jamming of the fuel handling system has occurred near the inlet to the boilers. Representatives of both facilities have proposed moving ID fans to alternate positions in an effort to fix this problem.

   (a) Have any modifications been performed on the fuel handling systems or ID Fans yet?

   (b) Should the fuel handling system be modified to adequately handle Tire Derived Fuel (TDF)?

(3) Are each of the following statements correct? If not, please provide additional supporting information.

   (a) The facilities are requesting exemption from 40 CFR 60, Subpart Cb for municipal waste combustors. (What is the justification (and rule citation) for the exemption?)

   (b) The facilities are subject to 40 CFR 60, Subpart Da for boilers.

   (c) The facilities are requesting exemption from 40 CFR 60, Subpart Ea for municipal waste combustors. The exemption is claimed based on 40 CFR 60.50a (d) for cofired combustors. The indication is that the cogeneration boilers will burn less than 30% municipal solid waste which is less than the 50% defined in 40 CFR 60.51a, over which the units would qualify as incinerators.

(4) Are the emissions of hydrochloric acid increasing from that of the original application? For example, in the Osceola Power application, it appears that the previous highest HCl levels would be 19.42 tons per year while burning about 5% coal. The estimated annual emissions of HCl while burning about 7% by weight TDF is 67 tons per year. Okeelanta Power's application indicates HCl emission over 100 tons per year. Are any control devices planned for the control of HCl emissions? Would such high HCl emissions have a detrimental effect on existing ductwork, fans, stacks, and control equipment?

(5) The factor used for estimating emissions of dioxins and furans was for wood waste boilers. A similar AP-42 emission factor for refuse-derived fuel burned in municipal waste combustors indicates several orders of magnitude higher. Shouldn't this more conservative estimate be used for the maximum (30%) municipal waste portion allowed by permit? Shouldn't these adjusted dioxin and furan emissions be compared with existing standards and modeling analyses?

(5) It is my understanding that the preliminary results for an initial stack test of sulfuric acid mist (SAM) indicates an exceedance of the emissions limiting standard. The applications indicate that SAM will be increased with the use of TDF replacing about 7% by weight of the biomass. Since the tests were conducted while burning *only* biomass, what reasonable assurance can be provided which would indicate compliance with the existing permit standard?

(6) Please provide more information on the sulfur capture in combination bark boilers. Figure 11 uses the phrase "ton wood residue per lb of sulfur in combined fuel feed". Does "ton wood residue" mean the *tons of wood burned in the boiler* or the *tons of ash generated from burning of wood in the boiler*?

Thank you for the opportunity to comment on this application.

Filename: TDF_PSD.FAX

R. File

Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

June 12, 1996

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Dennis Space
General Manager
Okeelanta Power Limited Partnership
Post Office Box 8
South Bay, Florida 33493

Re: Okeelanta Power Limited Partnership
Tire Derived Fuel Permit Amendment
Permit File No. AC50-219413, PSD-FL-196A

Dear Mr. Space:

The Department has received the application for incorporating the use of Tire Derived Fuel (TDF) as a supplemental fuel at Okeelanta Power in Palm Beach County. Based on our initial review of the proposed project, we have determined that additional information is needed in order to continue processing this application package. Please submit the information requested below to the Department's Bureau of Air Regulation:

1. 40 CFR 60.8(a) requires that owners and operators of NSPS facilities conduct an initial performance test no later than 60 days after reaching maximum production or 180 days after initial startup, whichever comes first. Specific Condition No. 21 (a) of the above referenced permit also requires the same. The application states that first firing in the boilers occurred in October, 1995. Based on this, the initial performance test should have been conducted at the latest by April, 1996. If the test was conducted, please submit the results for the same. If the test was not conducted, please explain the reasons for the variance from 40 CFR 60.8(a) and Specific Condition No. 21(a) requirements.

2. 40 CFR 60, Subpart Ea defines Cofired combustor as a unit combusting 30 percent or less by weight municipal solid waste (MSW) with a non-MSW fuel as measured on a calendar quarter basis. What measures will be taken by the

facility to comply with the 30 percent by weight requirements, particularly noting that yard wastes and tires are considered MSW , and will be used as fuel for the boilers.

3. Please quantify increases in lead emissions, if any, due to TDF burning.

4. Please quantify ash content (bottom, siftings and fly) generated from TDF combustion, and provide the chemical analyses for each element. What measures will be taken for offsite disposal, and where will be the final destination.

The Department will resume processing this application after we receive the requested information. Should you have any questions, please contact Syed Arif (engineering) or Cleve Holladay (modeling) at 904-488-1344.

Sincerely,

6/12

A. A. Linero, P.E.
Administrator
New Source Review Section

AAL/sa/t

cc: D. Knowles, SD
J. Koerner, PBCHU
J. Harper, EPA
J. Bunyak, NPS
D. Buff, KBN

Okeelanta -0990332-003-AC

PSD-FL-196A

INTEROFFICE MEMORANDUM

Date: 05-Jun-1996 08:07am EST
From: Kathy Anderson TAL
ANDERSON_K
Dept: Waste Management
Tel No: 904/922-6104
SUNCOM: 292-6104

TO: Richard Tedder TAL (TEDDER_R)
TO: Clair Fancy TAL (FANCY_C)

CC: Mary Jean Yon TAL (YON_MJ)
CC: Chris McGuire TAL (MCGUIRE_C)

Subject: Okleenta Sugar Mill

I received copies of the wood waste, fly, and bottom ash sampling results from the Okeelenta Sugar Mill Co-generation facility this past week. I reveiwed the data and was astounded at the high arsenic numbers in the fly ash !!!!!!!! Not only that but their fly ash flunks TCLP for chromium on ocassion.

Roughly speaking the bottom ash looks like Ridge ash .....Bottom ash - Arsenic ranging from 43 mg/kg to 89 mg/kg ..... Fly ash - Arsenic ranging from 330 mg/kg to 930mg/kg .....

I am preparing a spreadsheet summarizing there results so we can sit down and chat with Davaid Dee and the facility. I left a message for David Dee to call me, but he is out for a couple of days. What I would like to do is to chat to discuss several things such as :
1) Is the fly ash mixed with the bottom ash ? If so, how and where and what is the ratio of the fly ash to bottom ash?
2) What are they doing with the ash today ? If land applying then we need a risk assessment as soon as possible .....
3) Is the fly ash seperately from the bottom ash ? Where is it mixed ? Do we now have a problem with the hazardous waste people if the ash is collected and stored seperately ? Also if the ash is mixed then I need analysis on combined ash which they have not supplied me with .....

I still feel strongly about an ecological risk assessment for land application of these residuals. They were planning to land apply these all over the Everglades. There is cattle dip vat site, waste clean-up site, that Ligia and Zoe are involved in that is being cleaned up to 10 mg/kg because of the mallard duck migrating through the area when the human health risk clean up number was higher - 21 or 22 mg/kg. We need to internally discuss this issue with John Ruddell.

Kim - Copy Syed and Willard.

File this in latest Okeelanta request activefile that Syed is working on.

CL