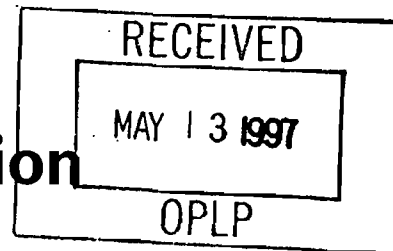




# Department of Environmental Protection



Lawton Chiles  
Governor

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

Virginia B. Wetherell  
Secretary

April 16, 1997

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

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

Re: FINAL Permit Modification No. 0990332-004-AC  
PSD-FL-196D

Dear Mr. Space:

The Department has reviewed Okeelanta Power's December 5, 1996 and March 25, 1997 letters requesting that the sulfuric acid mist emission standard and EPA Method 8 testing requirement be removed from the construction permit for your new cogeneration boilers located near South Bay in Palm Beach County.

In response to this request, the Department is retaining the sulfuric acid mist emission standard and adopting the modified Method 8 test procedure as described in the memorandum of December 19, 1995 from Jim Wright of Clean Air Engineering to Michelle Griffin. The permit is hereby amended as follows:

Specific Condition No. 20.b.

From:

EPA Method \*

8

For Determination of

Sulfuric Acid Mist

To:

EPA Method \*

8 (modified) \*\*

For Determination of

Sulfuric Acid Mist

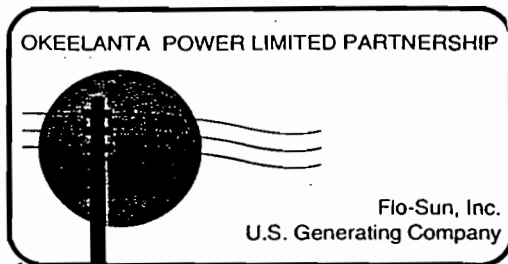
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\*\* As described in Clean Air Engineering memo dated December 19, 1995, Wright to Griffin

*"Protect, Conserve and Manage Florida's Environment and Natural Resources"*

*Printed on recycled paper.*

# FILE COPY



March 25, 1997

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

Attn: Mr. A.A. Linero, P.E.  
 Administrator  
 New Source Review Section

Re: Okeelanta Cogeneration Plant  
 DRAFT Permit Amendment No. 0990332-004-AC  
 AC50-219413, PSD-FL-196B

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

|   |    |                            |  |
|---|----|----------------------------|--|
| Sent to   |    | Mr. A.A. Linero, P.E.      |  |
| Street & Number   |    | 2600 Blair Stone Rd        |  |
| Post Office, State, & ZIP Code                              |    | Tallahassee, FL 32399-2400 |  |
| Postage   | \$ | .78                        |  |
| Certified Fee   |    | 1.10                       |  |
| Special Delivery Fee  |    |                            |  |
| Restricted Delivery Fee                                     |    |                            |  |
| Return Receipt Showing to Whom & Date Delivered             |    | 1.10                       |  |
| Return Receipt Showing to Whom, Date, & Addressee's Address |    |                            |  |
| TOTAL Postage & Fees  | \$ | 2.98                       |  |
| Postmark or Date  |    |                            |  |
| 3/25/97   |    |                            |  |

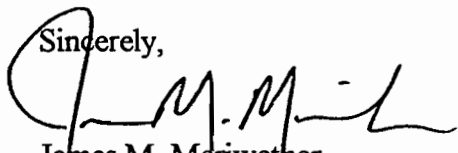
PS Form 3800, April 1995

Dear Mr. Linero:

Okeelanta Power has reviewed your letter of December 24, 1996 and encloses the following information regarding sulfuric acid mist emission tests.

1. Okeelanta Power test results for boilers A, B and C using Method 8.
2. Okeelanta Power test results for boilers A, B and C using Modified Method 8 concurrently with Method 8.
3. A Project Overview Discussion by Clean Air Engineering which reviews problems with Method 8 at the facility.
4. A Clean Air Engineering letter dated 12/19/95 which discusses similar problems with Method 8 at the Indiantown Cogeneration Plant.
5. A certificate of analysis for iso-Propyl Alcohol used by Clean Air Engineering during the sulfuric acid mist emission tests.

If you have any questions please contact me at (561) 993-1003.

Sincerely,  
  
 James M. Meriwether  
 Environmental Manager

cc: David Knowles - FDEP/South District  
 Ajaya Satyal - PBCHD

**RESULTS**

2-2

Table 2-2:

Stack A - Sulfur Dioxide/Sulfuric Acid Mist (EPA Method 8), Runs 1, 2, 3

| Run No.   | 1        | 2        | 3        | Average |
|---|----------|----------|----------|---------|
| Date (1996)   | May 11   | May 12   | May 12   |         |
| Start Time (approx.)                                  | 23:19    | 01:42    | 04:26    |         |
| Stop Time (approx.)                                   | 00:28    | 02:50    | 05:39    |         |
| <u>Fuel Analysis</u>                                  |          |          |          |         |
| F <sub>d</sub> Fuel factor (dscf/10 <sup>6</sup> Btu) | 8,489    | 8,489    | 8,489    |         |
| <u>Gas Conditions</u>                                 |          |          |          |         |
| T <sub>s</sub> Temperature (°F)                       | 331      | 328      | 327      | 329     |
| B <sub>w0</sub> Moisture (volume %)                   | 17.57    | 20.00    | 20.05    | 19.21   |
| O <sub>2</sub> Oxygen (dry volume %)                  | 6.3      | 5.8      | 6.0      | 6.0     |
| CO <sub>2</sub> Carbon dioxide (dry volume %)         | 13.7     | 14.4     | 14.0     | 14.0    |
| <u>Volumetric Flow Rate</u>                           |          |          |          |         |
| Q <sub>a</sub> Actual conditions (acfm)               | 256,600  | 251,100  | 256,800  | 254,800 |
| Q <sub>std</sub> Standard conditions (dscfm)          | 140,500  | 134,000  | 137,000  | 137,200 |
| <u>Sulfur Dioxide</u>                                 |          |          |          |         |
| C Concentration (ppm)                                 | 25.4     | 30.0     | 36.5     | 30.6    |
| E Emission rate (lb/hr)                               | 35.64    | 40.07    | 49.89    | 41.9    |
| E Emission rate (lb/10 <sup>6</sup> Btu)              | 0.0514   | 0.0586   | 0.0723   | 0.061   |
| <u>Sulfuric Acid Mist</u>                             |          |          |          |         |
| C Concentration (ppm)                                 | 3.9      | 3.7      | 4.0      | 3.9     |
| E Emission rate (lb/hr)                               | 8.266    | 7.672    | 8.305    | 8.08    |
| E Emission rate (lb/10 <sup>6</sup> Btu)              | 1.19E-02 | 1.12E-02 | 1.20E-02 | 1.2E-02 |



**RESULTS**

2-3

Table 2-3:

**Stack A - Sulfur Dioxide/Sulfuric Acid Mist (EPA Method 8), Runs 4, 5, 6**

| Run No.   | 4        | 5        | 6        | Average |
|---|----------|----------|----------|---------|
| Date (1996)   | May 29   | May 30   | May 30   |         |
| Start Time (approx.)                                  | 10:10    | 12:30    | 14:49    |         |
| Stop Time (approx.)                                   | 11:20    | 13:50    | 15:57    |         |
| <u>Fuel Analysis</u>                                  |          |          |          |         |
| F <sub>d</sub> Fuel factor (dscf/10 <sup>6</sup> Btu) | 8,489    | 8,489    | 8,489    |         |
| <u>Gas Conditions</u>                                 |          |          |          |         |
| T <sub>s</sub> Temperature (°F)                       | 332      | 342      | 343      | 339     |
| B <sub>w0</sub> Moisture (volume %)                   | 18.88    | 21.96    | 21.60    | 20.81   |
| O <sub>2</sub> Oxygen (dry volume %)                  | 5.7      | 6.1      | 5.6      | 5.8     |
| CO <sub>2</sub> Carbon dioxide (dry volume %)         | 14.5     | 14.0     | 14.6     | 14.4    |
| <u>Volumetric Flow Rate</u>                           |          |          |          |         |
| Q <sub>a</sub> Actual conditions (acfm)               | 260,500  | 284,200  | 289,000  | 277,900 |
| Q <sub>std</sub> Standard conditions (dscfm)          | 141,100  | 146,200  | 149,100  | 145,500 |
| <u>Sulfur Dioxide</u>                                 |          |          |          |         |
| C Concentration (ppm)                                 | 31.9     | 35.0     | 34.0     | 33.7    |
| E Emission rate (lb/hr)                               | 44.97    | 51.03    | 50.60    | 48.9    |
| E Emission rate (lb/10 <sup>6</sup> Btu)              | 0.062    | 0.070    | 0.066    | 0.07    |
| <u>Sulfuric Acid Mist</u>                             |          |          |          |         |
| C Concentration (ppm)                                 | 36.1     | 32.6     | 35.4     | 34.7    |
| E Emission rate (lb/hr)                               | 77.71    | 72.77    | 80.69    | 77.1    |
| E Emission rate (lb/10 <sup>6</sup> Btu)              | 1.07E-01 | 9.95E-02 | 1.05E-01 | 1.0E-01 |



**RESULTS**

2-4

**Table 2-4:  
 Stack A - Sulfuric Acid Mist (Modified Method 8)**

| Run No.   | 1        | 2        | 3        | Average |
|---|----------|----------|----------|---------|
| Date (1996)   | May 29   | May 30   | May 30   |         |
| Start Time (approx.)                                  | 10:10    | 12:30    | 14:49    |         |
| Stop Time (approx.)                                   | 11:20    | 13:52    | 15:57    |         |
| <u>Fuel Analysis</u>                                  |          |          |          |         |
| F <sub>d</sub> Fuel factor (dscf/10 <sup>6</sup> Btu) | 8,489    | 8,489    | 8,489    |         |
| <u>Gas Conditions</u>                                 |          |          |          |         |
| T <sub>s</sub> Temperature (°F)                       | 334      | 344      | 345      | 341     |
| B <sub>w0</sub> Moisture (volume %)                   | 22.03    | 22.60    | 20.73    | 21.79   |
| O <sub>2</sub> Oxygen (dry volume %)                  | 5.6      | 6.0      | 5.8      | 5.8     |
| CO <sub>2</sub> Carbon dioxide (dry volume %)         | 14.5     | 14.2     | 14.4     | 14.4    |
| <u>Volumetric Flow Rate</u>                           |          |          |          |         |
| Q <sub>a</sub> Actual conditions (acfm)               | 251,900  | 271,200  | 275,700  | 266,300 |
| Q <sub>std</sub> Standard conditions (dscfm)          | 130,800  | 138,100  | 143,500  | 137,500 |
| <u>Sulfuric Acid Mist</u>                             |          |          |          |         |
| C Concentration (ppm)                                 | 0.4      | 0.3      | 0.4      | 0.4     |
| E Emission rate (lb/hr)                               | 0.8000   | 0.7000   | 0.8000   | 0.767   |
| E Emission rate (lb/10 <sup>6</sup> Btu)              | 1.14E-03 | 9.76E-04 | 1.07E-03 | 1.1E-03 |



**RESULTS**

2-2

**Table 2-2:  
 Stack B - Sulfur Dioxide/Sulfuric Acid Mist (EPA Method 8), Runs 1, 2, 3**

| Run No.   | 1       | 2       | 3       | Average |
|---|---------|---------|---------|---------|
| Date (1996)   | May 15  | May 16  | May 16  |         |
| Start Time (approx.)                                  | 23:59   | 01:45   | 03:23   |         |
| Stop Time (approx.)                                   | 01:06   | 02:51   | 04:33   |         |
| <u>Fuel Analysis</u>                                  |         |         |         |         |
| F <sub>d</sub> Fuel factor (dscf/10 <sup>6</sup> Btu) | 8,476   | 8,476   | 8,476   |         |
| <u>Gas Conditions</u>                                 |         |         |         |         |
| T <sub>s</sub> Temperature (°F)                       | 291     | 292     | 294     | 292     |
| B <sub>wo</sub> Moisture (volume %)                   | 19.30   | 19.77   | 19.90   | 19.66   |
| O <sub>2</sub> Oxygen (dry volume %)                  | 5.8     | 5.5     | 5.9     | 5.7     |
| CO <sub>2</sub> Carbon dioxide (dry volume %)         | 14.8    | 15.0    | 14.9    | 14.9    |
| <u>Volumetric Flow Rate</u>                           |         |         |         |         |
| Q <sub>a</sub> Actual conditions (acfm)               | 249,300 | 252,300 | 243,500 | 248,400 |
| Q <sub>std</sub> Standard conditions (dscfm)          | 141,500 | 142,100 | 136,600 | 140,100 |
| <u>Sulfur Dioxide</u>                                 |         |         |         |         |
| C Concentration (ppm)                                 | 32.6    | 40.7    | 40.4    | 37.9    |
| E Emission rate (lb/hr)                               | 49.97   | 63.92   | 59.41   | 57.8    |
| E Emission rate (lb/10 <sup>6</sup> Btu)              | 0.0691  | 0.0862  | 0.0856  | 0.080   |
| <u>Sulfuric Acid Mist</u>                             |         |         |         |         |
| C Concentration (ppm)                                 | 8.6     | 8.6     | 7.8     | 8.3     |
| E Emission rate (lb/hr)                               | 20.30   | 20.71   | 17.52   | 19.5    |
| E Emission rate (lb/10 <sup>6</sup> Btu)              | 0.0280  | 0.0279  | 0.0252  | 0.027   |



**RESULTS**

2-3

Table 2-3:

Stack B - Sulfur Dioxide/Sulfuric Acid Mist (EPA Method 8), Runs 5, 6, 7

| Run No.   | 5        | 6        | 7        | Average |
|---|----------|----------|----------|---------|
| Date (1996)   | May 31   | May 31   | May 31   |         |
| Start Time (approx.)                                  | 15:21    | 17:34    | 20:14    |         |
| Stop Time (approx.)                                   | 16:36    | 19:23    | 21:27    |         |
| <u>Fuel Analysis</u>                                  |          |          |          |         |
| F <sub>d</sub> Fuel factor (dscf/10 <sup>6</sup> Btu) | 8,476    | 8,476    | 8,476    |         |
| <u>Gas Conditions</u>                                 |          |          |          |         |
| T <sub>s</sub> Temperature (°F)                       | 331      | 325      | 326      | 327     |
| B <sub>wo</sub> Moisture (volume %)                   | 24.19    | 22.66    | 22.46    | 23.10   |
| O <sub>2</sub> Oxygen (dry volume %)                  | 5.6      | 6.2      | 5.6      | 5.8     |
| CO <sub>2</sub> Carbon dioxide (dry volume %)         | 14.6     | 14.2     | 14.7     | 14.5    |
| <u>Volumetric Flow Rate</u>                           |          |          |          |         |
| Q <sub>a</sub> Actual conditions (acfm)               | 278,900  | 266,800  | 273,500  | 273,100 |
| Q <sub>std</sub> Standard conditions (dscfm)          | 141,200  | 139,000  | 142,700  | 141,000 |
| <u>Sulfuric Acid Mist</u>                             |          |          |          |         |
| C Concentration (ppm)                                 | 29.7     | 53.1     | 46.4     | 43.1    |
| E Emission rate (lb/hr)                               | 70.57    | 119.1    | 111.3    | 100     |
| E Emission rate (lb/10 <sup>6</sup> Btu)              | 9.64E-02 | 1.72E-01 | 1.51E-01 | 1.4E-01 |



**RESULTS**

2-4

**Table 2-4:  
 Stack B - Sulfuric Acid Mist (Modified Method 8)**

| Run No.   | 1        | 2        | 3        | Average |
|---|----------|----------|----------|---------|
| Date (1996)   | May 31   | May 31   | May 31   |         |
| Start Time (approx.)                                  | 15:21    | 17:34    | 20:14    |         |
| Stop Time (approx.)                                   | 16:36    | 19:23    | 21:27    |         |
| <u>Fuel Analysis</u>                                  |          |          |          |         |
| F <sub>d</sub> Fuel factor (dscf/10 <sup>6</sup> Btu) | 8,476    | 8,476    | 8,476    |         |
| <u>Gas Conditions</u>                                 |          |          |          |         |
| T <sub>s</sub> Temperature (°F)                       | 333      | 325      | 326      | 328     |
| B <sub>wo</sub> Moisture (volume %)                   | 24.64    | 22.97    | 23.61    | 23.74   |
| O <sub>2</sub> Oxygen (dry volume %)                  | 5.5      | 6.0      | 6.0      | 5.8     |
| CO <sub>2</sub> Carbon dioxide (dry volume %)         | 14.6     | 14.2     | 14.2     | 14.3    |
| <u>Volumetric Flow Rate</u>                           |          |          |          |         |
| Q <sub>a</sub> Actual conditions (acfm)               | 274,300  | 263,800  | 269,300  | 269,100 |
| Q <sub>std</sub> Standard conditions (dscfm)          | 137,800  | 136,800  | 138,400  | 137,700 |
| <u>Sulfuric Acid Mist</u>                             |          |          |          |         |
| C Concentration (ppm)                                 | 0.64     | 0.37     | 0.27     | 0.43    |
| E Emission rate (lb/hr)                               | 1.487    | 0.8360   | 0.6099   | 0.978   |
| E Emission rate (lb/10 <sup>6</sup> Btu)              | 2.07E-03 | 1.21E-03 | 8.73E-04 | 1.4E-03 |





**RESULTS**

2-2

**Table 2-2:  
 Stack C - Sulfur Dioxide/Sulfuric Acid Mist (EPA Method 8)**

| Run No. <sup>1</sup>                                  | 2        | 3        | 4        | Average |
|---|----------|----------|----------|---------|
| Date (1996)   | June 3   | June 3   | June 3   |         |
| Start Time (approx.)                                  | 19:02    | 21:03    | 22:59    |         |
| Stop Time (approx.)                                   | 20:16    | 22:13    | 00:10    |         |
| <u>Fuel Analysis</u>                                  |          |          |          |         |
| F <sub>d</sub> Fuel factor (dscf/10 <sup>6</sup> Btu) | 9,567    | 9,567    | 9,567    |         |
| <u>Gas Conditions</u>                                 |          |          |          |         |
| T <sub>s</sub> Temperature (°F)                       | 316      | 319      | 316      | 317     |
| B <sub>wo</sub> Moisture (volume %)                   | 20.00    | 20.85    | 20.93    | 20.59   |
| O <sub>2</sub> Oxygen (dry volume %)                  | 6.8      | 6.6      | 6.8      | 6.7     |
| CO <sub>2</sub> Carbon dioxide (dry volume %)         | 13.4     | 13.8     | 13.4     | 13.5    |
| <u>Volumetric Flow Rate</u>                           |          |          |          |         |
| Q <sub>a</sub> Actual conditions (acfm)               | 286,500  | 284,600  | 282,300  | 284,500 |
| Q <sub>std</sub> Standard conditions (dscfm)          | 156,500  | 153,100  | 152,200  | 153,900 |
| <u>Sulfur Dioxide</u>                                 |          |          |          |         |
| C Concentration (ppm)                                 | 20       | 10       | 19       | 16      |
| E Emission rate (lb/hr)                               | 31.13    | 15.78    | 28.81    | 25.2    |
| E Emission rate (lb/10 <sup>6</sup> Btu)              | 0.0470   | 0.0240   | 0.0447   | 0.039   |
| <u>Sulfuric Acid Mist</u>                             |          |          |          |         |
| C Concentration (ppm)                                 | 37.3     | 15.5     | 18.2     | 23.7    |
| E Emission rate (lb/hr)                               | 90.49    | 37.26    | 42.89    | 56.9    |
| E Emission rate (lb/10 <sup>6</sup> Btu)              | 1.40E-01 | 5.80E-02 | 6.81E-02 | 8.9E-02 |

<sup>1</sup> Run 1 conducted for diagnostic purpose.



**RESULTS**

2-3

**Table 2-3:  
 Stack C - Sulfuric Acid Mist (Modified Method 8)**

| Run No. <sup>1</sup>                                  | 2        | 3        | 4        | Average |
|---|----------|----------|----------|---------|
| Date (1996)   | June 3   | June 3   | June 3   |         |
| Start Time (approx.)                                  | 19:07    | 21:03    | 22:59    |         |
| Stop Time (approx.)                                   | 20:16    | 22:14    | 00:10    |         |
| <u>Fuel Analysis</u>                                  |          |          |          |         |
| F <sub>d</sub> Fuel factor (dscf/10 <sup>6</sup> Btu) | 9,567    | 9,567    | 9,567    |         |
| <u>Gas Conditions</u>                                 |          |          |          |         |
| T <sub>s</sub> Temperature (°F)                       | 315      | 317      | 316      | 316     |
| B <sub>wo</sub> Moisture (volume %)                   | 20.83    | 19.81    | 18.14    | 19.59   |
| O <sub>2</sub> Oxygen (dry volume %)                  | 6.7      | 6.6      | 6.4      | 6.6     |
| CO <sub>2</sub> Carbon dioxide (dry volume %)         | 13.4     | 13.6     | 13.7     | 13.6    |
| <u>Volumetric Flow Rate</u>                           |          |          |          |         |
| Q <sub>a</sub> Actual conditions (acfm)               | 282,800  | 284,900  | 280,500  | 282,700 |
| Q <sub>std</sub> Standard conditions (dscfm)          | 152,900  | 155,500  | 156,600  | 155,000 |
| <u>Sulfuric Acid Mist</u>                             |          |          |          |         |
| C Concentration (ppm)                                 | 0.5      | 0.3      | 0.3      | 0.4     |
| E Emission rate (lb/hr)                               | 1.2249   | 0.6736   | 0.8062   | 0.902   |
| E Emission rate (lb/10 <sup>6</sup> Btu)              | 1.92E-03 | 1.03E-03 | 1.21E-03 | 1.4E-03 |

<sup>1</sup> Run 1 conducted for diagnostic purpose.



## PROJECT OVERVIEW

1-4

### DISCUSSION

#### Methodology

During this test program, Clean Air Engineering incorporated guidelines as stated in Title 40 of the Code of Federal Regulations, Parts 60 (40 CFR 60), 61 (40 CFR 61) and 51 (40 CFR 51). Additional guidelines were followed in accordance with applicable requirements and provisions of 40 CFR 60, Subpart Da. The specific testing followed procedures in EPA Methods 1, 2, 3, 3A, 4, 5, 7E, 8, 9, 10, 12, 13B, 18, 19, 25, 25A, 101A, 104, 108, 201A and the EPA Emissions Measurement Technical Information Center (EMTIC) conditional test method CTM-012.

#### Fuel-Based Emission Rate Calculation

The emission rate of lb/10<sup>6</sup>Btu was calculated using a fuel factor (F<sub>g</sub>) of 9,567 dscf/10<sup>6</sup>Btu. This is an average of the 11 separate fuel samples collected by BPC during the test program. The results of the individual samples are contained in Appendix I.

#### Sulfuric Acid Mist

Based on experience gained during the Indiantown Cogeneration Project compliance test program in which a similar sampling situation was present, the following modifications to the sampling program were instituted.

Three EPA Method 8 runs were conducted simultaneously with three runs using Modified Method 8 procedures. This was due to a suspected positive bias caused by interferences in the flue gas resulting in the standard EPA Method 8 samples to be non-representative of the actual stack gas concentration of sulfuric acid mist.

CAE and Bechtel proposed a modification to the sampling procedure during the Indiantown Cogeneration compliance project to minimize the positive bias. Verbal agreement was received from the FDEP during that project to conduct the Modified Method 8 procedures concurrently with EPA Method 8 and submit both for review. The recommendation of the FDEP to perform additional Method 8 runs during the Indiantown Project was also followed during the Okeelanta test program.

The results of the modified runs are included in Table 2-3.

The modified sampling approach included the elimination of the analysis of the IPA impinger. In its place, the amount of filterable sulfate is considered to represent the sulfuric acid mist.

The following specific method alterations were followed in the modified runs.



## PROJECT OVERVIEW

1-5

1. A heated glass fiber filter was inserted between the probe and first impinger. This variance as allowed in paragraph 3 of section 1.2 of Method 8.
2. The train was operated according to standard Method 8 procedures.
3. At the completion of sampling, the probe and front-half glassware were rinsed with IPA. The filter was added to this rinse. These rinses were not mixed with the IPA from the first impinger.
4. The filter/probe rinse solution was analyzed for sulfate using standard Method 8 titration procedures.
5. The  $H_2SO_4$  emissions were considered to be completely represented by the sulfate determined from the filter and probe wash.

The stated detection limit for EPA Method 8 is 0.015 ppm. However, the method was specifically developed for use at sulfuric acid plants at which the flue gas is dry and free from known interferents such as ammonia and chlorides. At a facility such as Okeelanta, the method detection limit would be expected to be much higher, primarily due to interference from the combination of high flue gas moisture ( $\approx 20\%$ ) and sulfur dioxide ( $SO_2$ ).

Over the course of sampling,  $SO_2$  is partially absorbed in the isopropanol (IPA) impinger. This absorption is enhanced as the aqueous component of the first impinger increases from the condensed flue gas moisture. The method calls for a post-sampling air purge of the sampling train to remove the absorbed  $SO_2$  from the IPA. However, a small amount of  $SO_2$  will always remain in this impinger after purging due to vapor-liquid equilibrium phenomena.

### Total Non-Methane Hydrocarbons

At the request of the U.S. Generating Company, concurrent EPA Method 25 and Method 25A samples were collected during the compliance test program. In addition, EPA Method 18 was used to determine methane concentrations. Although both EPA Methods (25 and 25A) yielded mass emission rates that are below permitted limits, the results of the EPA Method 18/25A sampling procedure are believed to be more representative of actual stack conditions.

The results of the EPA Method 25A sampling indicated that minimal hydrocarbons ( $\approx 4.6$  ppm as carbon) were present in the stack gas. This was corroborated by the Method 18 results ( $\approx 2.5$  ppm) which indicated methane (also measurable by Method 25A) was also present in the stack gas in minimal quantities.



Partway West Industrial Park • 1601 Partway View Drive • Pittsburgh, PA 15205

Clean Air Engineering

Phone: 412/787-9130 • Fax: 412/787-8136

## MEMORANDUM

TO: Michelle Griffin  
U.S. Generating  
FAX: (301) 718-6917

FROM: Jim Wright  
Technical Director  
Clean Air Engineering  
Phone: (412) 787-9130

DATE: 12/19/95

RE: Method 8 Testing Limitations

CC: Bill Harper  
Bechtel  
FAX: (301) 330-2581

I researched the problem we are currently encountering in measuring sulfuric acid mist, ( $H_2SO_4$ ) at the Indiantown facility. Based on the test results thus far, I do not believe that EPA Method 8 can be used to demonstrate compliance with the  $H_2SO_4$  limit of 1 lb/hr ( $\approx 0.1$  ppm) without some alterations to the method.

The stated detection limit for Method 8 is 0.015 ppm. By itself, this should be low enough to demonstrate compliance with the facility's  $H_2SO_4$  emissions limit. However, the method was specifically developed for use at sulfuric acid plants at which the flue gas is dry and free from known interferences such as ammonia and chlorides. At a facility such as Indiantown, the method detection limit would be expected to be much higher, primarily due to interference from the combination of flue gas moisture and sulfur dioxide ( $SO_2$ ).

Over the course of sampling,  $SO_2$  is partially absorbed in the isopropanol (IPA) impinger. This absorption is enhanced as the aqueous component of the first impinger increases from the condensed flue gas moisture. The method calls for a post-sampling air purge of the sampling train to remove the absorbed  $SO_2$  from the IPA. However, a small amount of  $SO_2$  will always remain in this impinger after purging due to vapor-liquid equilibrium phenomena.

CAE's experience has shown that, for a wet flue gas of  $\approx 100$  ppm  $SO_2$ , the amount of residual  $SO_2$  left after purging equates to an in-stack bias of approximately 1 ppm. Thus, the potential positive bias in the method is significantly higher than the emissions limit itself. Furthermore, methodology modifications such as increased sample gas volume or increased analytical sensitivity will not improve this situation.

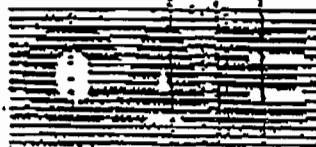
In order to circumvent this problem, I propose that the testing approach be modified to eliminate analysis of the IPA impinger. In its place, I recommend determining the amount of filterable sulfate and expressing this quantity as sulfuric acid mist. Since the flue gas temperature is relatively low (less than  $\approx 180^{\circ}\text{F}$ ), any gaseous sulfur trioxide ( $\text{SO}_2$ ) should already exist as condensed sulfuric acid, which is filterable. Thus, the amount of potential negative bias due to the modification should be negligible. This argument should help in obtaining agency approval for the modification.

The following specific method alterations are recommended:

1. Insert a heated glass fiber filter between the probe and first impinger. This variance is allowed in paragraph 3 of section 1.2 of Method 8.
2. Operate the train according to standard Method 8 procedures.
3. At the completion of sampling, rinse the probe and front-half glassware with IPA and add the filter to this rinse. Do not mix these rinses with the IPA from the first impinger.
4. Analyze the filter/probe rinse solution for sulfate using standard Method 8 titration procedures.
5. Consider the  $\text{H}_2\text{SO}_4$  emissions to be completely represented by the sulfate determined from the filter and probe wash.

One potential problem with this approach may be in the generation of a positive bias due to the presence of non-sulfuric acid sulfates such as ammonium sulfate (note that this is a problem with the current approach as well.) If this problem is suspected, then it may be desirable to use a more sophisticated analytical approach (e.g., ion chromatography) to quantify the amount of ammonium ion present, and subtract this from the total sulfate.

I hope that this information helps to clarify the current situation and potential testing options. Please feel free to call me or Bob Preksta at (412) 787-9130 if you have any additional questions.





Quality is  
good chemistry.

**EM SCIENCE**

**CERTIFICATE OF ANALYSIS**

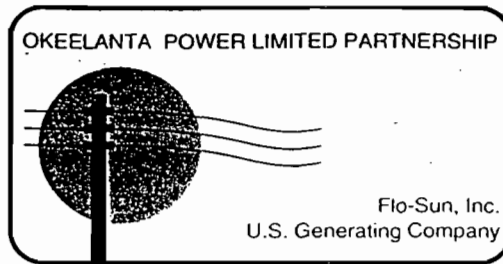
EM SCIENCE  
480 S. Democrat Road  
Gibbstown, NJ 08027  
Phone: 1-800-222-0342

NAME: iso-Propyl Alcohol (2-Propanol)  
OmniSolv(R)  
ITEM NUMBER: FX1834-1  
LOT NUMBER: 36038  
FORMULA: CH<sub>3</sub>CHOHCH<sub>3</sub>  
FORMULA WT: 60.10

Data Order No: 00008007

| PROPERTY   | LIMITS |      | RESULTS              | UNITS |
|--|--------|------|----------------------|-------|
|  | Min.   | Max. |                      |       |
| Assay (GC):  | 99.9   |      | 99.95                | %     |
| Capillary ECD responsive substances (as C6Cl6):    |        |      | 3.40                 | ppt   |
| Capillary FID responsive substances (as decane):   |        |      |                      | ppb   |
| Color (APHA):                                      |        | 10   | <10                  | APHA  |
| ECD responsive substances (as heptachlor epoxide): |        | 2.0  | 0.50                 | ppt   |
| Filtered for particulate matter:                   |        |      | Passes test          |       |
| Fluorescence (as quinine base):                    |        | 250  | 26.3                 | ppt   |
| Form:  |        |      | Clear liquid         |       |
| Infrared spectrum:                                 |        |      | Conforms to standard |       |
| Refractive Index (n <sub>D</sub> <sup>25</sup> ):  |        |      | 1.3782               |       |
| Residue after evaporation:                         | 1      |      | <0.1                 | ppm   |
| Titratable acid:                                   | 0.2    |      | 0.08                 | µeq/g |
| UV Abs. at 204 nm:                                 | 1.00   |      | 0.492                | AU    |
| UV Abs. at 205 nm:                                 | 0.80   |      | 0.380                | AU    |
| UV Abs. at 210 nm:                                 | 0.35   |      | 0.122                | AU    |
| UV Abs. at 220 nm:                                 | 0.10   |      | 0.037                | AU    |
| UV Abs. at 230 nm:                                 | 0.05   |      | 0.016                | AU    |
| UV Abs. at 240 nm:                                 | 0.02   |      | 0.005                | AU    |
| UV Abs. at 260 nm:                                 | 0.005  |      | <0.001               | AU    |
| UV Abs. at 300 nm:                                 | 0.005  |      | <0.001               | AU    |
| UV Cut-off:  | 204    |      | 201.4                | nm    |
| Water (H <sub>2</sub> O):                          | 0.05   |      | 0.014                | %     |

*Charles M. Wilson*  
 Charles M. Wilson,  
 Quality Assurance Manager  
 Analysis Date: 02/08/96



December 5, 1996

State of Florida  
Department of Environmental Protection  
Bureau of Air Regulation  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Attn: Mr. Clair Fancy

Re: Okeelanta Power Limited Partnership  
AC50-219413/PSD-FL-196  
Sulfuric Acid Mist  
Minor Permit Amendment

Dear Mr. Fancy:

Okeelanta Power Limited Partnership (OkPLP) is requesting the Florida Department of Environmental Protection (FDEP) to amend Specific Condition #21 of our PSD permit to delete Sulfuric Acid Mist (SAM) as an emission compliance test constituent. We also request FDEP to remove the emission limit for SAM from Specific Condition #20.

OkPLP is the owner of the Okeelanta Cogeneration Plant located in Palm Beach County - South Bay, Florida. The Okeelanta Cogeneration Plant is a 74.9 megawatt electric cogeneration facility which utilizes biomass (clean wood waste material and bagasse) as the primary fuel and No. 2 low sulfur fuel oil as startup and supplementary fuel. The facility is permitted to burn low sulfur coal as an alternative fuel, however, coal is not currently utilized as a plant fuel source.

The cogeneration plant consists of three ABB steam boilers with a design heat input for each boiler of 715 MMBtu/hr on biomass and 490 MMBtu/hr on fuel oil. Each boiler will produce approximately 455,400 lbs/hr steam at 1,500 psig and 975 degrees F. Particulate matter, nitrogen oxides, and mercury emissions from each boiler are controlled by electrostatic precipitators, selective non-catalytic reduction, and carbon injection, respectively.

The initial emission compliance tests were conducted in May and June 1996. During these stack tests several SAM tests were conducted using the permitted EPA Method 8. The erratic results of these tests were determined to be invalid due to probable interferences from urea and chlorides and high moisture content in the flue gas. The testing contractor,



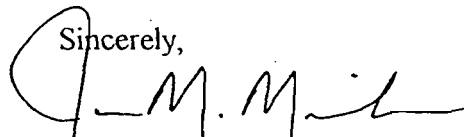
Clean Air Engineering, had experienced this problem before and recommended using a Modified Method 8. Three runs of Modified Method 8 were conducted in an attempt to achieve valid results. These results along with the initial test results were reported to the Department. Since Modified Method 8 was not an approved alternate method the test results were not accepted.

Due to problems with Method 8 at the Okeelanta Cogeneration Plant there is concerns about compliance with our current permit conditions. During subsequent discussions on this issue with Mr. Michael Harley (FDEP BAR) it was determined that the requirement to test for SAM may be deleted through a minor permit amendment. EPA Method 8 was developed for sulfuric acid plants where the flue gas is dry and free of interference and therefore not appropriate for a biomass fired facility.

In summary, OkPLP is withdrawing our previous request for approval of Modified Method 8 as an alternative procedure and now requests that a minor permit amendment be made to PSD-FL-196. Specifically, we are requesting that Specific Condition #21 of our PSD permit be amended to delete SAM as an emission compliance test constituent and also remove the emission limit for SAM from Specific Condition #20. I have enclosed a check in the amount of \$250.00 to cover the processing fee.

If you have any question or require additional information please contact me at (561) 993-1003.

Sincerely,



James M. Meriwether  
Environmental Manager

cc: David Knowles - FDEP/Ft. Myers  
Ajaya Satyal - PBCHD  
Michael Harley - FDEP/TLH  
D. Space - OkPLP  
G. Cepero - OC  
J. Ketterling - USOSC  
D. Beckham - USGen  
D. Dee - L&P



# Department of Environmental Protection

RECEIVED

DEC 30 1996

Lawton Chiles  
Governor

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

Virginia B. Wetherell  
Secretary

December 24, 1996

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. James M. Meriwether  
Environmental Manager  
Okeelanta Power Limited Partnership  
P.O. Box 8  
South Bay, FL 33493

Re: DRAFT Permit Amendment No. 0990332-004-AC (AC50-219413), PSD-FL-196B  
Okeelanta Cogeneration Plant

Dear Mr. Meriwether:

The Department has reviewed your application for a minor permit amendment to Specific Conditions No. 20 and No. 21 of the above referenced permit. We need additional information to process this request. Please provide the information requested below.

1. Summary of test results on this unit using Method 8.
2. Summary of test results on this unit using Modified Method 8.
3. Any technical articles to support your request that Method 8 is inappropriate for this facility.

The Department will resume processing this application after receipt of the requested information. If you have any questions on this matter, please call Al Linero or Willard Hanks at 904/488-1344.

Sincerely,

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

AAL/wh/hh

cc: Mr. Joe Kahn, SED  
Mr. David Buff, KBN  
Mr. David Knowles, FDEP/Ft. Myers  
Mr. Jeff Korner, PBC

*"Protect, Conserve and Manage Florida's Environment and Natural Resources"*



# Department of Environmental Protection

Lawton Chiles  
Governor

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

Virginia B. Wetherell  
Secretary

May 8, 1997

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

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

Re: FINAL Permit Amendment No. 0990332-007-AC  
PSD-FL-196D

Dear Mr. Space:

The Department has reviewed Landers & Parsons' May 6 letter requesting a permit amendment to authorize a new schedule for the performance test of your cogeneration boilers located near South Bay in Palm Beach County. This request is acceptable and the referenced permit is amended as follows:

Specific Condition No. 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 completed by July 1, 1997. 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  $11.5 \times 10^{12}$  Btu per year. Steam production of each boiler shall not exceed an average of 455,418 lbs/hr at 1,500 psig, 975°F.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative hearing in accordance with Sections 120.569 and 120.57 F.S. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000, telephone: 904/488-9730, fax: 904/487-4938. Petitions must be filed within fourteen days of receipt of this letter. A petitioner must mail a copy of the petition to the applicant at the address indicated above, at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-5.207 of the Florida Administrative Code.

*"Protect, Conserve and Manage Florida's Environment and Natural Resources"*

Mr. Dennis Space  
May 8, 1997  
Page 2

A petition must contain the following information: (a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Permit File Number and the county in which the project is proposed; (b) A statement of how and when each petitioner received notice of the Department's action or proposed action; (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action; (d) A statement of the material facts disputed by petitioner, if any; (e) A statement of the facts that the petitioner contends warrant reversal or modification of the Department's action or proposed action; (f) A statement identifying the rules or statutes that the petitioner contends require reversal or modification of the Department's action or proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action that the petitioner wants the Department to take with respect to the action or proposed action addressed in this notice of intent.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice of intent. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

A copy of this letter shall be filed with the referenced permit and shall become part of the permit.

Sincerely,



Howard L. Rhodes, Director  
Division of Air Resources  
Management

HLR/wh/t

**CERTIFICATE OF SERVICE**

The undersigned duly designated deputy agency clerk hereby certifies that this AMENDMENT was sent by certified mail (\*) and copies were mailed by U.S. Mail before the close of business on 5-8-97 to the person(s) listed:

- Mr. Dennis Space, Okeelanta Power L.P. \*
- Mr. David Knowles, SD
- Mr. James Stormer, PBCPHU
- Mr. David Dee, Landers and Parsons

Clerk Stamp

**FILING AND ACKNOWLEDGMENT FILED**, on this date, pursuant to §120.52(7), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Luiz J. Ibar  
(Clerk)

5-8-97  
(Date)

RETURN ADDRESS completed on the reverse side?

|   |                                     |   |
|---|-------------------------------------|---|
| <b>SENDER:</b><br>■ Complete items 1 and/or 2 for additional services.<br>■ Complete items 3, 4a, and 4b.<br>■ Print your name and address on the reverse of this form so that we can return this card to you.<br>■ Attach this form to the front of the mailpiece, or on the back if space does not permit.<br>■ Write "Return Receipt Requested" on the mailpiece below the article number.<br>■ 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):<br>1. <input type="checkbox"/> Addressee's Address<br>2. <input type="checkbox"/> Restricted Delivery<br>Consult postmaster for fee.  |
| 3. Article Addressed to:<br>Dennis Space, Gen. Mgr.<br>Okeelanta Power, LP<br>P O Box 8<br>South Bay, FL<br>33493   | 4a. Article Number<br>P 265 659 212 |   |
| 5. Received By: (Print Name)<br>P. Bourg  |                                     | 4b. Service Type<br><input type="checkbox"/> Registered <input checked="" type="checkbox"/> Certified<br><input type="checkbox"/> Express Mail <input type="checkbox"/> Insured<br><input type="checkbox"/> Return Receipt for Merchandise <input type="checkbox"/> COD |
| 6. Signature: (Addressee or Agent)<br>P. Bourg  |                                     | 7. Date of Delivery<br>5/15/97  |
| 8. Addressee's Address (Only if requested and fee is paid)  |                                     |   |

Thank you for using Return Receipt Service.

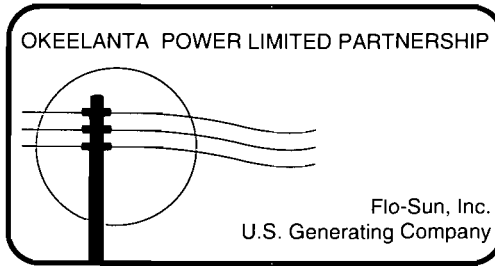
P 265 659 212

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

|  |           |
|--|-----------|
| Sent to<br>Dennis Space  |           |
| Street & Number<br>Okeelanta Power                                 |           |
| Post Office, State, & ZIP Code<br>South 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        |           |
| <b>TOTAL Postage &amp; Fees</b>                                    | <b>\$</b> |
| Postmark or Date<br>correction 5/9/97<br>page 70<br>0990332-007-AE |           |

PS Form 3800, April 1995

To Obtain Return Receipt



**RECEIVED**

**MAY 05 1997**

**DIVISION OF AIR  
RESOURCES MANAGEMENT**

*Clair  
pls handle  
dk*

**RECEIVED**

**MAY 06 1997**

**BUREAU OF  
AIR REGULATION**

May 1, 1997

State of Florida  
Department of Environmental Protection  
Division of Air Resources Management  
Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Attn: Mr. Howard L. Rhodes, Director

Re: Okeelanta Power Limited Partnership  
Permit Mod. No. 0990332-004-AC  
PSD-FL-196D

Dear Mr. Rhodes:

Okeelanta Power has received your letter to Mr. Dennis Space, dated April 16, 1997, that approves the use of Modified Method 8 for the determination of sulfuric acid mist. However, the first paragraph of the letter refers to Osceola Power instead of Okeelanta Power. I assume that Okeelanta Power should have been referenced in the permit amendment, if so please clarify for my records.

Sincerely,

James M. Meriwether  
Environmental Manager

cc: David Knowles - FDEP/South District  
James Stormer - PBCHD  
Ricardo Lima  
Jerome Ketterling  
David Buff  
David Dee

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
NOTICE OF FINAL PERMIT AMENDMENT

In the Matter of an  
Application for Permit Amendment

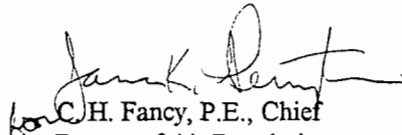
Mr. Dennis Space, General Manager  
Okeelanta Power Limited Partnership  
Post Office Box 8  
South Bay, Florida 334~~76~~93

DEP File No. 0990332-004-AC  
PSD-FL-196D

Enclosed is a letter that amends Permit Number PSD-FL-196C. This letter amends the construction permit for Okeelanta Power's cogeneration facility to specify another procedure to show compliance with the sulfuric acid mist emission standard.

Any party to this order (permit) has the right to seek judicial review of the permit pursuant to Section 120.68, F.S., by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Legal Office; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 (thirty) days from the date this Notice is filed with the Clerk of the Department.

Executed in Tallahassee, Florida.

  
for C.H. Fancy, P.E., Chief  
Bureau of Air Regulation

CERTIFICATE OF SERVICE


The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF FINAL PERMIT AMENDMENT (including the FINAL permit amendment) was sent by certified mail (\*) and copies were mailed by U.S. Mail before the close of business on 4/18/97 to the person(s) listed:

Mr. Dennis Space, Okeelanta Power L.P.\*  
David Knowles, SC  
Isidore Goldman, SED  
James Stormer, PBCPHU

Brian Beals, EPA  
John Bunyak, NPS  
David Buff, Golder Associates  
David Dee, Landers & Parsons

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to §120.52(7), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

  
(Clerk) 4/18/97 (Date)



# Department of Environmental Protection

Lawton Chiles  
Governor

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

Virginia B. Wetherell  
Secretary

April 16, 1997

## CERTIFIED MAIL - RETURN RECEIPT REQUESTED

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

Re: FINAL Permit Modification No. 0990332-004-AC  
PSD-FL-106D

Dear Mr. Space:

The Department has reviewed Osceola Power's December 5, 1996 and March 25, 1997 letters requesting that the sulfuric acid mist emission standard and EPA Method 8 testing requirement be removed from the construction permit for your new cogeneration boilers located near South Bay in Palm Beach County.

In response to this request, the Department is retaining the sulfuric acid mist emission standard and adopting the modified Method 8 test procedure as described in the memorandum of December 19, 1995 from Jim Wright of Clean Air Engineering to Michelle Griffin. The permit is hereby amended as follows:

### Specific Condition No. 21.b.

From:

EPA Method \*

8

For Determination of

Sulfuric Acid Mist

To:

EPA Method \*

8 (modified) \*\*

For Determination of

Sulfuric Acid Mist

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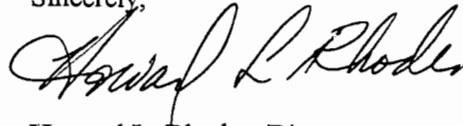
\*\* As described in Clean Air Engineering memo dated December 19, 1995, Wright to Griffin



Mr. Dennis Space  
April 16, 1997  
Page 2

A copy of this letter shall be filed with the referenced permit and shall become part of the permit.

Sincerely,

A handwritten signature in cursive script that reads "Howard L. Rhodes".

Howard L. Rhodes, Director  
Division of Air Resources  
Management

HLR/wh/t

your RETURN ADDRESS completed on the reverse side?

**SENDER:**

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- 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:

MR. DENNIS SPACE  
Okeelanta Power, L.A.  
Post Office Box 8  
South Bay, FL 33476

4a. Article Number

P265 659 195

4b. Service Type

- Registered  Certified
- Express Mail  Insured
- Return Receipt for Merchandise  COD

7. Date of Delivery

4-23-97

5. Received By: (Print Name)

6. Signature: (Addressee or Agent)

*[Handwritten Signature]*

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

PS Form 3800, 4/95

Domestic Return Receipt

Thank you for using Return Receipt Service.

P. 265 659 195

US Postal Service  
**Receipt for Certified Mail**

No Insurance Coverage Provided.  
Do not use for International Mail (See reverse)

|   |                    |
|---|--------------------|
| Sent to   |                    |
| MR. DENNIS SPACE  |                    |
| Street & Number   |                    |
| P.O. Box 8  |                    |
| Post Office, State, & ZIP Code                              |                    |
| South Bay, FL 33476   |                    |
| 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  | <del>4-23-97</del> |
| Okeelanta 196D  |                    |

PS Form 3800, April 1995

Florida Department of  
Environmental Protection

Memorandum

CLAIR

TO: Howard L. Rhodes  
THRU: for Clair Fancy *JKP*  
Al Linero  
FROM: Willard Hanks *wmh*  
DATE: April 16, 1997  
SUBJECT: Osceola and Okeelanta Power LP  
Sulfuric Acid Mist Emissions

Attached for approval and signature are letters that will amend the construction permits for Osceola and Okeelanta Power's cogeneration plants located near Pahokee and South Bay in Palm Beach County. The amendment authorizes sulfuric acid mist emissions to be determined by a modified EPA Method 8 test. Interference from ammonia in the gas stream prevents the use of the standard EPA Method 8 specified in the permit to measure sulfuric acid mist emissions. The facilities checked with the Emission Monitoring Section who indicated that permit revisions rather than the alternate standard or procedure process as provided for in Rule 62-297, F.A.C., was the proper way to handle these requests.

I recommend your approval and signature of the amendments to allow a different method to determine sulfuric acid mist emissions.

CHF/wh

Attachment

**RECEIVED**

APR 18 1997

BUREAU OF  
AIR REGULATION



# Department of Environmental Protection

Lawton Chiles  
Governor

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

Virginia B. Wetherell  
Secretary

April 16, 1997

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

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

Re: FINAL Permit Modification No. 0990332-004-AC  
PSD-FL-196D

Dear Mr. Space:

The Department has reviewed Okeelanta Power's December 5, 1996 and March 25, 1997 letters requesting that the sulfuric acid mist emission standard and EPA Method 8 testing requirement be removed from the construction permit for your new cogeneration boilers located near South Bay in Palm Beach County.

In response to this request, the Department is retaining the sulfuric acid mist emission standard and adopting the modified Method 8 test procedure as described in the memorandum of December 19, 1995 from Jim Wright of Clean Air Engineering to Michelle Griffin. The permit is hereby amended as follows:

Specific Condition No. 20.b.

From:

|                     |                             |
|---------------------|-----------------------------|
| <u>EPA Method *</u> | <u>For Determination of</u> |
| 8                   | Sulfuric Acid Mist          |

To:

|                     |                             |
|---------------------|-----------------------------|
| <u>EPA Method *</u> | <u>For Determination of</u> |
| 8 (modified) **     | Sulfuric Acid Mist          |

---

\*\* As described in Clean Air Engineering memo dated December 19, 1995, Wright to Griffin

Fold at line over top of envelope to

Is your RETURN ADDRESS completed on the reverse side?

**SENDER:**

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- 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:  
 Dennis Space, Gen. Mgr.  
 Okelanda Power, LP  
 P O Box 8  
 South Bay, FL 33493

4a. Article Number  
 P 265 659 205

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

7. Date of Delivery  
 5-13-97

5. Received By: (Print Name)

P. BOURG

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

6. Signature: (Addressee or Agent)

*[Signature]*

Thank you for using Return Receipt Service.

PS Form 3811, December 1994

Domestic Return Receipt

P 265 659 205

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

PS Form 3800, April 1995

|   |    |                |
|---|----|----------------|
| Sent to   |    | Dennis Space   |
| Street & Number   |    | Okelanda Power |
| Post Office, State, & ZIP Code                              |    | South 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  |    | 5-6-97         |
|   |    | 0990332-004-AC |
|   |    | PSO-FL-1962    |

## Memorandum

To: Clair Fancy

From: Willard Hanks *wmh*Subject: Okeelanta Power L.P.  
AC50-219413/PSD-FL-196

Date: April 29, 1997

This cogeneration facility is permitted to burn biomass (bagasse and wood chips), No. 2 oil and coal. Emissions are controlled by the use of a SNCR for NOx, ESPs for PM, carbon injection for mercury, and the use of low sulfur (0.7%) coal for SO2.

Key events in the permit for Okeelanta Power L.P.'s 74.9 MW cogeneration facility near Pahokee, Florida are:

- Application (Flo-Energy, Inc.) received on September 30, 1992.
- Application complete on February 18, 1993.
- DEP Intent issued June 3, 1993. Permit issued on September 27, 1993. Original expiration date was July 1, 1996.
- Facility burned fuel oil during October, 1995.
- Facility burned biomass during February, 1996.
- Permit amended February 20, 1996, to limit MSW (yard waste) to 30%.
- Initial compliance tests conducted in May, 1996.
- On April 7, 1996, the permittee requested, and on June 14, 1996, the Department approved additional time (until April 1, 1997) for the simultaneous operation of the cogeneration and sugar mill boilers. Time needed to connect bagasse feed system from the sugar mill to the cogeneration facility.
- On May 13, 1996, the permittee requested permission to burn tire derived fuel (TDF). On January 22, 1997, the Department approved a test burn of TDF.
- On December 18, 1996, the permittee requested the sulfuric acid mist (SAM) standard and test method be deleted because of problems (ammonia interference) with the test method. On April 18, 1997, the Department approved another procedure to determine compliance with the SAM standard.
- PBCPHU sent a warning notice dated February 11, 1997, for exceedances in mercury, carbon monoxide, visible emissions, and other operation items.
- On *march* May 3, 1997, the permittee requested additional time for simultaneous operation of the cogeneration and sugar mill boilers because of bagasse feed connection problems between the plants. The Department issues an Intent to approve the additional time (until April 1, 1998) on March 20, 1997.

5/1 - 10A  
DAN T - CLAIR - AL -  
WILLARD

- On April 23, 1997, permittee requested more time to do the TDF test burn. The Department will process this request in May.
- During April, 1997, their environmental engineer said a request to address the mercury, sulfur dioxide and carbon monoxide emissions was being prepared.

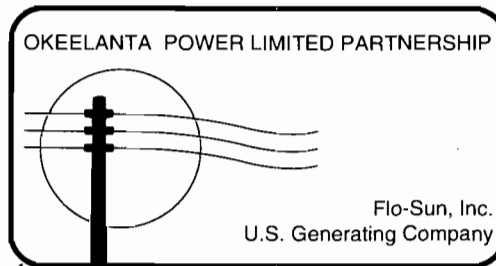
The plant has had problems. Among them were:

- The fans had to be relocated to after the electrostatic precipitator because of abrasion.
- The feed (wood chips) and ash contained higher metal content than allowed. Better monitoring of the fuel quality seems to have corrected this.
- Emissions of some pollutants exceeded the permit standards. Changing the test method for SAM, which was biased by the ammonia interference, should allow the plants to comply with the SAM standard. The engineer will request a permit modification for some other pollutants.
- The bagasse feed system from the sugar mill to the cogeneration boilers has mechanical problems. The permittee is still working on this.

The situation at Osceola Power L.P. is similar.

March 25, 1997

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



**RECEIVED**  
MAR 31 1997  
BUREAU OF  
AIR REGULATION

Attn: Mr. A.A. Linero, P.E.  
Administrator  
New Source Review Section

Re: Okeelanta Cogeneration Plant  
DRAFT Permit Amendment No. 0990332-004-AC  
AC50-219413, PSD-FL-196B

Dear Mr. Linero:

Okeelanta Power has reviewed your letter of December 24, 1996 and encloses the following information regarding sulfuric acid mist emission tests.

1. Okeelanta Power test results for boilers A, B and C using Method 8.
2. Okeelanta Power test results for boilers A, B and C using Modified Method 8 concurrently with Method 8.
3. A Project Overview Discussion by Clean Air Engineering which reviews problems with Method 8 at the facility.
4. A Clean Air Engineering letter dated 12/19/95 which discusses similar problems with Method 8 at the Indiantown Cogeneration Plant.
5. A certificate of analysis for iso-Propyl Alcohol used by Clean Air Engineering during the sulfuric acid mist emission tests.

If you have any questions please contact me at (561) 993-1003.

Sincerely,

James M. Meriwether  
Environmental Manager

cc: David Knowles - FDEP/South District  
Ajaya Satyal - PBCHD

cc: D. Buff, M.A.  
K. Anderson, DEP  
EPA  
NPS  
W. Hanks, BAR



**RESULTS**

2-2

**Table 2-2:**  
**Stack A - Sulfur Dioxide/Sulfuric Acid Mist (EPA Method 8), Runs 1, 2, 3**

| Run No.   | 1        | 2        | 3        | Average |
|---|----------|----------|----------|---------|
| Date (1996)   | May 11   | May 12   | May 12   |         |
| Start Time (approx.)                                  | 23:19    | 01:42    | 04:26    |         |
| Stop Time (approx.)                                   | 00:28    | 02:50    | 05:39    |         |
| <u>Fuel Analysis</u>                                  |          |          |          |         |
| F <sub>d</sub> Fuel factor (dscf/10 <sup>6</sup> Btu) | 8,489    | 8,489    | 8,489    |         |
| <u>Gas Conditions</u>                                 |          |          |          |         |
| T <sub>s</sub> Temperature (°F)                       | 331      | 328      | 327      | 329     |
| B <sub>wo</sub> Moisture (volume %)                   | 17.57    | 20.00    | 20.05    | 19.21   |
| O <sub>2</sub> Oxygen (dry volume %)                  | 6.3      | 5.8      | 6.0      | 6.0     |
| CO <sub>2</sub> Carbon dioxide (dry volume %)         | 13.7     | 14.4     | 14.0     | 14.0    |
| <u>Volumetric Flow Rate</u>                           |          |          |          |         |
| Q <sub>a</sub> Actual conditions (acfm)               | 256,600  | 251,100  | 256,800  | 254,800 |
| Q <sub>std</sub> Standard conditions (dscfm)          | 140,500  | 134,000  | 137,000  | 137,200 |
| <u>Sulfur Dioxide</u>                                 |          |          |          |         |
| C Concentration (ppm)                                 | 25.4     | 30.0     | 36.5     | 30.6    |
| E Emission rate (lb/hr)                               | 35.64    | 40.07    | 49.89    | 41.9    |
| E Emission rate (lb/10 <sup>6</sup> Btu)              | 0.0514   | 0.0586   | 0.0723   | 0.061   |
| <u>Sulfuric Acid Mist</u>                             |          |          |          |         |
| C Concentration (ppm)                                 | 3.9      | 3.7      | 4.0      | 3.9     |
| E Emission rate (lb/hr)                               | 8.266    | 7.672    | 8.305    | 8.08    |
| E Emission rate (lb/10 <sup>6</sup> Btu)              | 1.19E-02 | 1.12E-02 | 1.20E-02 | 1.2E-02 |



**RESULTS**

2-3

**Table 2-3:  
 Stack A - Sulfur Dioxide/Sulfuric Acid Mist (EPA Method 8), Runs 4, 5, 6**

| Run No.   | 4        | 5        | 6        | Average |
|---|----------|----------|----------|---------|
| Date (1996)   | May 29   | May 30   | May 30   |         |
| Start Time (approx.)                                  | 10:10    | 12:30    | 14:49    |         |
| Stop Time (approx.)                                   | 11:20    | 13:50    | 15:57    |         |
| <u>Fuel Analysis</u>                                  |          |          |          |         |
| F <sub>d</sub> Fuel factor (dscf/10 <sup>6</sup> Btu) | 8,489    | 8,489    | 8,489    |         |
| <u>Gas Conditions</u>                                 |          |          |          |         |
| T <sub>s</sub> Temperature (°F)                       | 332      | 342      | 343      | 339     |
| B <sub>wo</sub> Moisture (volume %)                   | 18.88    | 21.96    | 21.60    | 20.81   |
| O <sub>2</sub> Oxygen (dry volume %)                  | 5.7      | 6.1      | 5.6      | 5.8     |
| CO <sub>2</sub> Carbon dioxide (dry volume %)         | 14.5     | 14.0     | 14.6     | 14.4    |
| <u>Volumetric Flow Rate</u>                           |          |          |          |         |
| Q <sub>a</sub> Actual conditions (acfm)               | 260,500  | 284,200  | 289,000  | 277,900 |
| Q <sub>std</sub> Standard conditions (dscfm)          | 141,100  | 146,200  | 149,100  | 145,500 |
| <u>Sulfur Dioxide</u>                                 |          |          |          |         |
| C Concentration (ppm)                                 | 31.9     | 35.0     | 34.0     | 33.7    |
| E Emission rate (lb/hr)                               | 44.97    | 51.03    | 50.60    | 48.9    |
| E Emission rate (lb/10 <sup>6</sup> Btu)              | 0.062    | 0.070    | 0.066    | 0.07    |
| <u>Sulfuric Acid Mist</u>                             |          |          |          |         |
| C Concentration (ppm)                                 | 36.1     | 32.6     | 35.4     | 34.7    |
| E Emission rate (lb/hr)                               | 77.71    | 72.77    | 80.69    | 77.1    |
| E Emission rate (lb/10 <sup>6</sup> Btu)              | 1.07E-01 | 9.95E-02 | 1.05E-01 | 1.0E-01 |



**RESULTS**

2-4

**Table 2-4:  
 Stack A - Sulfuric Acid Mist (Modified Method 8)**

| Run No.   | 1        | 2        | 3        | Average |
|---|----------|----------|----------|---------|
| Date (1996)   | May 29   | May 30   | May 30   |         |
| Start Time (approx.)                                  | 10:10    | 12:30    | 14:49    |         |
| Stop Time (approx.)                                   | 11:20    | 13:52    | 15:57    |         |
| <u>Fuel Analysis</u>                                  |          |          |          |         |
| F <sub>d</sub> Fuel factor (dscf/10 <sup>6</sup> Btu) | 8,489    | 8,489    | 8,489    |         |
| <u>Gas Conditions</u>                                 |          |          |          |         |
| T <sub>s</sub> Temperature (°F)                       | 334      | 344      | 345      | 341     |
| B <sub>wo</sub> Moisture (volume %)                   | 22.03    | 22.60    | 20.73    | 21.79   |
| O <sub>2</sub> Oxygen (dry volume %)                  | 5.6      | 6.0      | 5.8      | 5.8     |
| CO <sub>2</sub> Carbon dioxide (dry volume %)         | 14.5     | 14.2     | 14.4     | 14.4    |
| <u>Volumetric Flow Rate</u>                           |          |          |          |         |
| Q <sub>a</sub> Actual conditions (acfm)               | 251,900  | 271,200  | 275,700  | 266,300 |
| Q <sub>std</sub> Standard conditions (dscfm)          | 130,800  | 138,100  | 143,500  | 137,500 |
| <u>Sulfuric Acid Mist</u>                             |          |          |          |         |
| C Concentration (ppm)                                 | 0.4      | 0.3      | 0.4      | 0.4     |
| E Emission rate (lb/hr)                               | 0.8000   | 0.7000   | 0.8000   | 0.767   |
| E Emission rate (lb/10 <sup>6</sup> Btu)              | 1.14E-03 | 9.76E-04 | 1.07E-03 | 1.1E-03 |



**RESULTS**

2-2

**Table 2-2:  
 Stack B - Sulfur Dioxide/Sulfuric Acid Mist (EPA Method 8), Runs 1, 2, 3**

| Run No.   | 1       | 2       | 3       | Average |
|---|---------|---------|---------|---------|
| Date (1996)   | May 15  | May 16  | May 16  |         |
| Start Time (approx.)                                  | 23:59   | 01:45   | 03:23   |         |
| Stop Time (approx.)                                   | 01:06   | 02:51   | 04:33   |         |
| <u>Fuel Analysis</u>                                  |         |         |         |         |
| F <sub>d</sub> Fuel factor (dscf/10 <sup>6</sup> Btu) | 8,476   | 8,476   | 8,476   |         |
| <u>Gas Conditions</u>                                 |         |         |         |         |
| T <sub>s</sub> Temperature (°F)                       | 291     | 292     | 294     | 292     |
| B <sub>wo</sub> Moisture (volume %)                   | 19.30   | 19.77   | 19.90   | 19.66   |
| O <sub>2</sub> Oxygen (dry volume %)                  | 5.8     | 5.5     | 5.9     | 5.7     |
| CO <sub>2</sub> Carbon dioxide (dry volume %)         | 14.8    | 15.0    | 14.9    | 14.9    |
| <u>Volumetric Flow Rate</u>                           |         |         |         |         |
| Q <sub>a</sub> Actual conditions (acfm)               | 249,300 | 252,300 | 243,500 | 248,400 |
| Q <sub>std</sub> Standard conditions (dscfm)          | 141,500 | 142,100 | 136,600 | 140,100 |
| <u>Sulfur Dioxide</u>                                 |         |         |         |         |
| C Concentration (ppm)                                 | 32.6    | 40.7    | 40.4    | 37.9    |
| E Emission rate (lb/hr)                               | 49.97   | 63.92   | 59.41   | 57.8    |
| E Emission rate (lb/10 <sup>6</sup> Btu)              | 0.0691  | 0.0862  | 0.0856  | 0.080   |
| <u>Sulfuric Acid Mist</u>                             |         |         |         |         |
| C Concentration (ppm)                                 | 8.6     | 8.6     | 7.8     | 8.3     |
| E Emission rate (lb/hr)                               | 20.30   | 20.71   | 17.52   | 19.5    |
| E Emission rate (lb/10 <sup>6</sup> Btu)              | 0.0280  | 0.0279  | 0.0252  | 0.027   |



**RESULTS**

2-3

**Table 2-3:**  
**Stack B - Sulfur Dioxide/Sulfuric Acid Mist (EPA Method 8), Runs 5, 6, 7**

| Run No.   | 5        | 6        | 7        | Average |
|---|----------|----------|----------|---------|
| Date (1996)   | May 31   | May 31   | May 31   |         |
| Start Time (approx.)                                  | 15:21    | 17:34    | 20:14    |         |
| Stop Time (approx.)                                   | 16:36    | 19:23    | 21:27    |         |
| <u>Fuel Analysis</u>                                  |          |          |          |         |
| F <sub>d</sub> Fuel factor (dscf/10 <sup>6</sup> Btu) | 8,476    | 8,476    | 8,476    |         |
| <u>Gas Conditions</u>                                 |          |          |          |         |
| T <sub>s</sub> Temperature (°F)                       | 331      | 325      | 326      | 327     |
| B <sub>wo</sub> Moisture (volume %)                   | 24.19    | 22.66    | 22.46    | 23.10   |
| O <sub>2</sub> Oxygen (dry volume %)                  | 5.6      | 6.2      | 5.6      | 5.8     |
| CO <sub>2</sub> Carbon dioxide (dry volume %)         | 14.6     | 14.2     | 14.7     | 14.5    |
| <u>Volumetric Flow Rate</u>                           |          |          |          |         |
| Q <sub>a</sub> Actual conditions (acfm)               | 278,900  | 266,800  | 273,500  | 273,100 |
| Q <sub>std</sub> Standard conditions (dscfm)          | 141,200  | 139,000  | 142,700  | 141,000 |
| <u>Sulfuric Acid Mist</u>                             |          |          |          |         |
| C Concentration (ppm)                                 | 29.7     | 53.1     | 46.4     | 43.1    |
| E Emission rate (lb/hr)                               | 70.57    | 119.1    | 111.3    | 100     |
| E Emission rate (lb/10 <sup>6</sup> Btu)              | 9.64E-02 | 1.72E-01 | 1.51E-01 | 1.4E-01 |



**RESULTS**

2-4

**Table 2-4:  
 Stack B - Sulfuric Acid Mist (Modified Method 8)**

| Run No.   | 1        | 2        | 3        | Average |
|---|----------|----------|----------|---------|
| Date (1996)   | May 31   | May 31   | May 31   |         |
| Start Time (approx.)                                  | 15:21    | 17:34    | 20:14    |         |
| Stop Time (approx.)                                   | 16:36    | 19:23    | 21:27    |         |
| <u>Fuel Analysis</u>                                  |          |          |          |         |
| F <sub>d</sub> Fuel factor (dscf/10 <sup>6</sup> Btu) | 8,476    | 8,476    | 8,476    |         |
| <u>Gas Conditions</u>                                 |          |          |          |         |
| T <sub>s</sub> Temperature (°F)                       | 333      | 325      | 326      | 328     |
| B <sub>wo</sub> Moisture (volume %)                   | 24.64    | 22.97    | 23.61    | 23.74   |
| O <sub>2</sub> Oxygen (dry volume %)                  | 5.5      | 6.0      | 6.0      | 5.8     |
| CO <sub>2</sub> Carbon dioxide (dry volume %)         | 14.6     | 14.2     | 14.2     | 14.3    |
| <u>Volumetric Flow Rate</u>                           |          |          |          |         |
| Q <sub>a</sub> Actual conditions (acfm)               | 274,300  | 263,800  | 269,300  | 269,100 |
| Q <sub>std</sub> Standard conditions (dscfm)          | 137,800  | 136,800  | 138,400  | 137,700 |
| <u>Sulfuric Acid Mist</u>                             |          |          |          |         |
| C Concentration (ppm)                                 | 0.64     | 0.37     | 0.27     | 0.43    |
| E Emission rate (lb/hr)                               | 1.487    | 0.8360   | 0.6099   | 0.978   |
| E Emission rate (lb/10 <sup>6</sup> Btu)              | 2.07E-03 | 1.21E-03 | 8.73E-04 | 1.4E-03 |



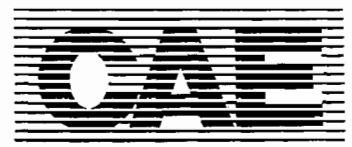
**RESULTS**

2-2

**Table 2-2:  
 Stack C - Sulfur Dioxide/Sulfuric Acid Mist (EPA Method 8)**

| Run No. <sup>1</sup>                                  | 2        | 3        | 4        | Average |
|---|----------|----------|----------|---------|
| Date (1996)   | June 3   | June 3   | June 3   |         |
| Start Time (approx.)                                  | 19:02    | 21:03    | 22:59    |         |
| Stop Time (approx.)                                   | 20:16    | 22:13    | 00:10    |         |
| <u>Fuel Analysis</u>                                  |          |          |          |         |
| F <sub>d</sub> Fuel factor (dscf/10 <sup>6</sup> Btu) | 9,567    | 9,567    | 9,567    |         |
| <u>Gas Conditions</u>                                 |          |          |          |         |
| T <sub>s</sub> Temperature (°F)                       | 316      | 319      | 316      | 317     |
| B <sub>wo</sub> Moisture (volume %)                   | 20.00    | 20.85    | 20.93    | 20.59   |
| O <sub>2</sub> Oxygen (dry volume %)                  | 6.8      | 6.6      | 6.8      | 6.7     |
| CO <sub>2</sub> Carbon dioxide (dry volume %)         | 13.4     | 13.8     | 13.4     | 13.5    |
| <u>Volumetric Flow Rate</u>                           |          |          |          |         |
| Q <sub>a</sub> Actual conditions (acfm)               | 286,500  | 284,600  | 282,300  | 284,500 |
| Q <sub>std</sub> Standard conditions (dscfm)          | 156,500  | 153,100  | 152,200  | 153,900 |
| <u>Sulfur Dioxide</u>                                 |          |          |          |         |
| C Concentration (ppm)                                 | 20       | 10       | 19       | 16      |
| E Emission rate (lb/hr)                               | 31.13    | 15.78    | 28.81    | 25.2    |
| E Emission rate (lb/10 <sup>6</sup> Btu)              | 0.0470   | 0.0240   | 0.0447   | 0.039   |
| <u>Sulfuric Acid Mist</u>                             |          |          |          |         |
| C Concentration (ppm)                                 | 37.3     | 15.5     | 18.2     | 23.7    |
| E Emission rate (lb/hr)                               | 90.49    | 37.26    | 42.89    | 56.9    |
| E Emission rate (lb/10 <sup>6</sup> Btu)              | 1.40E-01 | 5.80E-02 | 6.81E-02 | 8.9E-02 |

<sup>1</sup> Run 1 conducted for diagnostic purpose.



**RESULTS**

2-3

**Table 2-3:  
 Stack C - Sulfuric Acid Mist (Modified Method 8)**

| Run No. <sup>1</sup>                                  | 2        | 3        | 4        | Average |
|---|----------|----------|----------|---------|
| Date (1996)   | June 3   | June 3   | June 3   |         |
| Start Time (approx.)                                  | 19:07    | 21:03    | 22:59    |         |
| Stop Time (approx.)                                   | 20:16    | 22:14    | 00:10    |         |
| <u>Fuel Analysis</u>                                  |          |          |          |         |
| F <sub>d</sub> Fuel factor (dscf/10 <sup>6</sup> Btu) | 9,567    | 9,567    | 9,567    |         |
| <u>Gas Conditions</u>                                 |          |          |          |         |
| T <sub>s</sub> Temperature (°F)                       | 315      | 317      | 316      | 316     |
| B <sub>wo</sub> Moisture (volume %)                   | 20.83    | 19.81    | 18.14    | 19.59   |
| O <sub>2</sub> Oxygen (dry volume %)                  | 6.7      | 6.6      | 6.4      | 6.6     |
| CO <sub>2</sub> Carbon dioxide (dry volume %)         | 13.4     | 13.6     | 13.7     | 13.6    |
| <u>Volumetric Flow Rate</u>                           |          |          |          |         |
| Q <sub>a</sub> Actual conditions (acfm)               | 282,800  | 284,900  | 280,500  | 282,700 |
| Q <sub>std</sub> Standard conditions (dscfm)          | 152,900  | 155,500  | 156,600  | 155,000 |
| <u>Sulfuric Acid Mist</u>                             |          |          |          |         |
| C Concentration (ppm)                                 | 0.5      | 0.3      | 0.3      | 0.4     |
| E Emission rate (lb/hr)                               | 1.2249   | 0.6736   | 0.8062   | 0.902   |
| E Emission rate (lb/10 <sup>6</sup> Btu)              | 1.92E-03 | 1.03E-03 | 1.21E-03 | 1.4E-03 |

<sup>1</sup> Run 1 conducted for diagnostic purpose.





## PROJECT OVERVIEW

1-4

### DISCUSSION

#### Methodology

During this test program, Clean Air Engineering incorporated guidelines as stated in Title 40 of the Code of Federal Regulations, Parts 60 (40 CFR 60), 61 (40 CFR 61) and 51 (40 CFR 51). Additional guidelines were followed in accordance with applicable requirements and provisions of 40 CFR 60, Subpart Da. The specific testing followed procedures in EPA Methods 1, 2, 3, 3A, 4, 5, 7E, 8, 9, 10, 12, 13B, 18, 19, 25, 25A, 101A, 104, 108, 201A and the EPA Emissions Measurement Technical Information Center (EMTIC) conditional test method CTM-012.

#### Fuel-Based Emission Rate Calculation

The emission rate of lb/10<sup>6</sup>Btu was calculated using a fuel factor ( $F_d$ ) of 9,567 dscf/10<sup>6</sup>Btu. This is an average of the 11 separate fuel samples collected by BPC during the test program. The results of the individual samples are contained in Appendix I.

#### Sulfuric Acid Mist

Based on experience gained during the Indiantown Cogeneration Project compliance test program in which a similar sampling situation was present, the following modifications to the sampling program were instituted.

Three EPA Method 8 runs were conducted simultaneously with three runs using Modified Method 8 procedures. This was due to a suspected positive bias caused by interferences in the flue gas resulting in the standard EPA Method 8 samples to be non-representative of the actual stack gas concentration of sulfuric acid mist.

CAE and Bechtel proposed a modification to the sampling procedure during the Indiantown Cogeneration compliance project to minimize the positive bias. Verbal agreement was received from the FDEP during that project to conduct the Modified Method 8 procedures concurrently with EPA Method 8 and submit both for review. The recommendation of the FDEP to perform additional Method 8 runs during the Indiantown Project was also followed during the Okeelanta test program.

The results of the modified runs are included in Table 2-3.

The modified sampling approach included the elimination of the analysis of the IPA impinger. In its place, the amount of filterable sulfate is considered to represent the sulfuric acid mist.

The following specific method alterations were followed in the modified runs.



## PROJECT OVERVIEW

1-5

1. A heated glass fiber filter was inserted between the probe and first impinger. This variance as allowed in paragraph 3 of section 1.2 of Method 8.
2. The train was operated according to standard Method 8 procedures.
3. At the completion of sampling, the probe and front-half glassware were rinsed with IPA. The filter was added to this rinse. These rinses were not mixed with the IPA from the first impinger.
4. The filter/probe rinse solution was analyzed for sulfate using standard Method 8 titration procedures.
5. The  $H_2SO_4$  emissions were considered to be completely represented by the sulfate determined from the filter and probe wash.

The stated detection limit for EPA Method 8 is 0.015 ppm. However, the method was specifically developed for use at sulfuric acid plants at which the flue gas is dry and free from known interferents such as ammonia and chlorides. At a facility such as Okeelanta, the method detection limit would be expected to be much higher, primarily due to interference from the combination of high flue gas moisture ( $\approx 20\%$ ) and sulfur dioxide ( $SO_2$ ).

Over the course of sampling,  $SO_2$  is partially absorbed in the isopropanol (IPA) impinger. This absorption is enhanced as the aqueous component of the first impinger increases from the condensed flue gas moisture. The method calls for a post-sampling air purge of the sampling train to remove the absorbed  $SO_2$  from the IPA. However, a small amount of  $SO_2$  will always remain in this impinger after purging due to vapor-liquid equilibrium phenomena.

### Total Non-Methane Hydrocarbons

At the request of the U.S. Generating Company, concurrent EPA Method 25 and Method 25A samples were collected during the compliance test program. In addition, EPA Method 18 was used to determine methane concentrations. Although both EPA Methods (25 and 25A) yielded mass emission rates that are below permitted limits, the results of the EPA Method 18/25A sampling procedure are believed to be more representative of actual stack conditions.

The results of the EPA Method 25A sampling indicated that minimal hydrocarbons ( $\approx 4.6$  ppm as carbon) were present in the stack gas. This was corroborated by the Method 18 results ( $\approx 2.5$  ppm) which indicated methane (also measurable by Method 25A) was also present in the stack gas in minimal quantities.





Clean Air Engineering

Phone: 412/787-9130 • Fax: 412/787-9136

## MEMORANDUM

TO: Michelle Griffin  
U.S. Generating  
FAX: (301) 718-6917

FROM: Jim Wright  
Technical Director  
Clean Air Engineering  
Phone: (412) 787-9130

DATE: 12/19/95

RE: Method 8 Testing Limitations

CC: Bill Harper  
Bechtel  
FAX: (301) 330-2581

I researched the problem we are currently encountering in measuring sulfuric acid mist ( $H_2SO_4$ ) at the Indiantown facility. Based on the test results thus far, I do not believe that EPA Method 8 can be used to demonstrate compliance with the  $H_2SO_4$  limit of 1 lb/hr ( $\approx 0.1$  ppm) without some alterations to the method.

The stated detection limit for Method 8 is 0.015 ppm. By itself, this should be low enough to demonstrate compliance with the facility's  $H_2SO_4$  emissions limit. However, the method was specifically developed for use at sulfuric acid plants at which the flue gas is dry and free from known interferences such as ammonia and chlorides. At a facility such as Indiantown, the method detection limit would be expected to be much higher, primarily due to interference from the combination of flue gas moisture and sulfur dioxide ( $SO_2$ ).

Over the course of sampling,  $SO_2$  is partially absorbed in the isopropanol (IPA) impinger. This absorption is enhanced as the aqueous component of the first impinger increases from the condensed flue gas moisture. The method calls for a post-sampling air purge of the sampling train to remove the absorbed  $SO_2$  from the IPA. However, a small amount of  $SO_2$  will always remain in this impinger after purging due to vapor-liquid equilibrium phenomena.

CAE's experience has shown that, for a wet flue gas of  $\approx 100$  ppm  $SO_2$ , the amount of residual  $SO_2$  left after purging equates to an in-stack bias of approximately 1 ppm. Thus, the potential positive bias in the method is significantly higher than the emissions limit itself. Furthermore, methodology modifications such as increased sample gas volume or increased analytical sensitivity will not improve this situation.

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In order to circumvent this problem, I propose that the testing approach be modified to eliminate analysis of the IPA impinger. In its place, I recommend determining the amount of filterable sulfate and expressing this quantity as sulfuric acid mist. Since the flue gas temperature is relatively low (less than  $\approx 180^{\circ}\text{F}$ ), any gaseous sulfur trioxide ( $\text{SO}_3$ ) should already exist as condensed sulfuric acid, which is filterable. Thus, the amount of potential negative bias due to the modification should be negligible. This argument should help in obtaining agency approval for the modification.

The following specific method alterations are recommended:

1. Insert a heated glass fiber filter between the probe and first impinger. This variance is allowed in paragraph 3 of section 1.2 of Method 8.
2. Operate the train according to standard Method 8 procedures.
3. At the completion of sampling, rinse the probe and front-half glassware with IPA and add the filter to this rinse. Do not mix these rinses with the IPA from the first impinger.
4. Analyze the filter/probe rinse solution for sulfate using standard Method 8 titration procedures.
5. Consider the  $\text{H}_2\text{SO}_4$  emissions to be completely represented by the sulfate determined from the filter and probe wash.

One potential problem with this approach may be in the generation of a positive bias due to the presence of non-sulfuric acid sulfates such as ammonium sulfate (note that this is a problem with the current approach as well.) If this problem is suspected, then it may be desirable to use a more sophisticated analytical approach (e.g., ion chromatography) to quantify the amount of ammonium ion present, and subtract this from the total sulfate.

I hope that this information helps to clarify the current situation and potential testing options. Please feel free to call me or Bob Preksta at (412) 787-9130 if you have any additional questions.





Quality is good chemistry.

# EM SCIENCE CERTIFICATE OF ANALYSIS

EM SCIENCE  
480 S. Democrat Road  
Gibbstown, NJ 08027  
Phone: 1-800-222-0342

NAME: iso-Propyl Alcohol (2-Propanol)  
OmniSolv(R)  
ITEM NUMBER: FX1834-1  
LOT NUMBER: 36038  
FORMULA: CH<sub>3</sub>CHOHCH<sub>3</sub>  
FORMULA WT: 60.10

Data Order No: 00008007

| PROPERTY   | LIMITS |       | RESULTS              | UNITS |
|--|--------|-------|----------------------|-------|
|  | Min.   | Max.  |                      |       |
| Assay (GC):  | 99.9   |       | 99.95                | %     |
| Capillary ECD responsive substances (as C6Cl6):    |        |       | 3.40                 | ppt   |
| Capillary FID responsive substances (as decane):   |        |       |                      | ppb   |
| Color (APHA):                                      |        | 10    | <10                  | APHA  |
| ECD responsive substances (as heptachlor epoxide): |        | 2.0   | 0.50                 | ppt   |
| Filtered for particulate matter:                   |        |       | Passes test          |       |
| Fluorescence (as quinine base):                    |        | 250   | 26.3                 | ppt   |
| FORM:  |        |       | Clear liquid         |       |
| Infrared spectrum:                                 |        |       | Conforms to standard |       |
| Refractive Index (n <sub>25/D</sub> ):             |        |       | 1.3782               |       |
| Residue after evaporation:                         |        | 1     | <0.1                 | ppm   |
| Titratable acid:                                   |        | 0.2   | 0.08                 | µeq/g |
| UV Abs. at 204 nm:                                 |        | 1.00  | 0.492                | AU    |
| UV Abs. at 205 nm:                                 |        | 0.80  | 0.380                | AU    |
| UV Abs. at 210 nm:                                 |        | 0.35  | 0.122                | AU    |
| UV Abs. at 220 nm:                                 |        | 0.10  | 0.037                | AU    |
| UV Abs. at 230 nm:                                 |        | 0.05  | 0.016                | AU    |
| UV Abs. at 240 nm:                                 |        | 0.02  | 0.005                | AU    |
| UV Abs. at 260 nm:                                 |        | 0.005 | <0.001               | AU    |
| UV Abs. at 300 nm:                                 |        | 0.005 | <0.001               | AU    |
| UV Cut-off:  |        | 204   | 201.4                | nm    |
| Water (H <sub>2</sub> O):                          |        | 0.05  | 0.014                | %     |

Charles M. Wilson,  
Quality Assurance Manager  
Analysis Date: 02/08/96



# Department of Environmental Protection

Lawton Chiles  
Governor

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

Virginia B. Wetherell  
Secretary

December 24, 1996

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. James M. Meriwether  
Environmental Manager  
Okeelanta Power Limited Partnership  
P.O. Box 8  
South Bay, FL 33493

Re: DRAFT Permit Amendment No. 0990332-004-AC (AC50-219413), PSD-FL-196B  
Okeelanta Cogeneration Plant

Dear Mr. Meriwether:

The Department has reviewed your application for a minor permit amendment to Specific Conditions No. 20 and No. 21 of the above referenced permit. We need additional information to process this request. Please provide the information requested below.

1. Summary of test results on this unit using Method 8.
2. Summary of test results on this unit using Modified Method 8.
3. Any technical articles to support your request that Method 8 is inappropriate for this facility.

The Department will resume processing this application after receipt of the requested information. If you have any questions on this matter, please call Al Linero or Willard Hanks at 904/488-1344.

Sincerely,

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

AAL/wh/hh

cc: Mr. Joe Kahn, SED  
Mr. David Buff, KBN  
Mr. David Knowles, FDEP/Ft. Myers  
Mr. Jeff Korner, PBC

*"Protect, Conserve and Manage Florida's Environment and Natural Resources"*

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|  |   |
|--|---|
| <p>3. Article Addressed to:<br/> <i>James Merivether, Encl. Mgr.</i><br/> <i>Okeelanta Power, LP</i><br/> <i>P.O. Box 8</i><br/> <i>South Bay, FL</i><br/> <span style="float: right;"><i>33493</i></span></p> | <p>4a. Article Number<br/> <i>P265 659 117</i></p> <p>4b. Service Type<br/> <input type="checkbox"/> Registered                      <input checked="" type="checkbox"/> Certified<br/> <input type="checkbox"/> Express Mail                      <input type="checkbox"/> Insured<br/> <input type="checkbox"/> Return Receipt for Merchandise   <input type="checkbox"/> COD</p> <p>7. Date of Delivery<br/> <i>12-30-96</i></p> |
| <p>5. Received By: (Print Name)</p>  | <p>8. Addressee's Address (Only if requested and fee is paid)</p>   |
| <p>6. Signature: (Addressee or Agent)<br/> <i>[Signature]</i></p>  |   |

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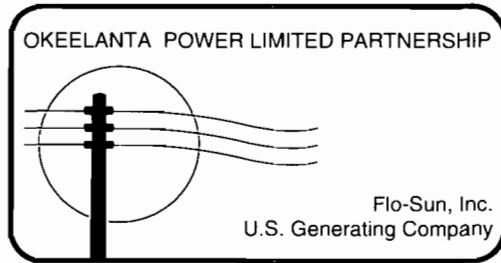
|   |                 |
|---|-----------------|
| Sent to<br><i>James Merivether</i>                          |                 |
| Street & Number<br><i>Okeelanta Power</i>                   |                 |
| Post Office, State, & ZIP Code<br><i>South Bay FL</i>       |                 |
| Postage   | \$              |
| Certified Fee   |                 |
| Special Delivery Fee  |                 |
| Restricted Delivery Fee                                     |                 |
| Return Receipt Showing to Whom, & Date Delivered            |                 |
| Return Receipt Showing to Whom, Date, & Addressee's Address |                 |
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| <i>0990332-004-AC</i>                                       |                 |

PS Form 3800, April 1995

3755

256561

2224



December 5, 1996

State of Florida  
 Department of Environmental Protection  
 Bureau of Air Regulation  
 2600 Blair Stone Road  
 Tallahassee, Florida 32399-2400

0990332-004-AC  
 PSD-FL-196 B?

Attn: Mr. Clair Fancy

Re: Okeelanta Power Limited Partnership  
 AC50-219413/PSD-FL-196  
 Sulfuric Acid Mist  
 Minor Permit Amendment

RECEIVED  
 MAIL ROOM  
 DEC 18 96

Dear Mr. Fancy:

Okeelanta Power Limited Partnership (OkPLP) is requesting the Florida Department of Environmental Protection (FDEP) to amend Specific Condition #21 of our PSD permit to delete Sulfuric Acid Mist (SAM) as an emission compliance test constituent. We also request FDEP to remove the emission limit for SAM from Specific Condition #20.

OkPLP is the owner of the Okeelanta Cogeneration Plant located in Palm Beach County - South Bay, Florida. The Okeelanta Cogeneration Plant is a 74.9 megawatt electric cogeneration facility which utilizes biomass (clean wood waste material and bagasse) as the primary fuel and No. 2 low sulfur fuel oil as startup and supplementary fuel. The facility is permitted to burn low sulfur coal as an alternative fuel, however, coal is not currently utilized as a plant fuel source.

The cogeneration plant consists of three ABB steam boilers with a design heat input for each boiler of 715 MMBtu/hr on biomass and 490 MMBtu/hr on fuel oil. Each boiler will produce approximately 455,400 lbs/hr steam at 1,500 psig and 975 degrees F. Particulate matter, nitrogen oxides, and mercury emissions from each boiler are controlled by electrostatic precipitators, selective non-catalytic reduction, and carbon injection, respectively.

The initial emission compliance tests were conducted in May and June 1996. During these stack tests several SAM tests were conducted using the permitted EPA Method 8. The erratic results of these tests were determined to be invalid due to probable interferences from urea and chlorides and high moisture content in the flue gas. The testing contractor,

\* → 0990332 -004 - AC



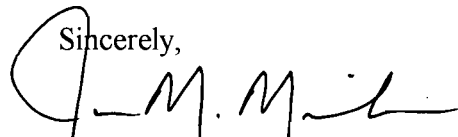
Clean Air Engineering, had experienced this problem before and recommended using a Modified Method 8. Three runs of Modified Method 8 were conducted in an attempt to achieve valid results. These results along with the initial test results were reported to the Department. Since Modified Method 8 was not an approved alternate method the test results were not accepted.

Due to problems with Method 8 at the Okeelanta Cogeneration Plant there is concerns about compliance with our current permit conditions. During subsequent discussions on this issue with Mr. Michael Harley (FDEP BAR) it was determined that the requirement to test for SAM may be deleted through a minor permit amendment. EPA Method 8 was developed for sulfuric acid plants where the flue gas is dry and free of interference and therefore not appropriate for a biomass fired facility.

In summary, OkPLP is withdrawing our previous request for approval of Modified Method 8 as an alternative procedure and now requests that a minor permit amendment be made to PSD-FL-196. Specifically, we are requesting that Specific Condition #21 of our PSD permit be amended to delete SAM as an emission compliance test constituent and also remove the emission limit for SAM from Specific Condition #20. I have enclosed a check in the amount of \$250.00 to cover the processing fee.

If you have any question or require additional information please contact me at (561) 993-1003.

Sincerely,



James M. Meriwether  
Environmental Manager

cc: David Knowles - FDEP/Ft. Myers  
Ajaya Satyal - PBCHD  
Michael Harley - FDEP/TLH  
D. Space - OkPLP  
G. Cepero - OC  
J. Ketterling - USOSC  
D. Beckham - USGen  
D. Dee - L&P  
cc: W. Harke, BAR

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Dennis Space, Gen. Mgr.  
Okeelanta Power, LP  
P O Box 8  
South Bay, FL  
33493

4a. Article Number

P 265 659 212

4b. Service Type

- Registered  Certified
- Express Mail  Insured
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7. Date of Delivery

5/15/97

5. Received By: (Print Name)

P. Bourc

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

6. Signature: (Addressee or Agent)

P. Bourc

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|---|----|
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| Dennis Space  |    |
| Street & Number   |    |
| Okeelanta Power   |    |
| Post Office, State, & ZIP Code                              |    |
| South Bay, FL   |    |
| Postage   | \$ |
| Certified Fee   |    |
| Special Delivery Fee  |    |
| Restricted Delivery Fee                                     |    |
| Return Receipt Showing to Whom & Date Delivered             |    |
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| TOTAL Postage & Fees  | \$ |
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| correction 5/9/97   |    |
| page 40   |    |
| 0990332-007-AC  |    |

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 MR. DENNIS SPACE  
 Okeelanta Power, L.A.  
 Post Office Box 8  
 South Bay, FL 33476

4a. Article Number  
 P265 659 195

4b. Service Type

|   |   |
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| Sent to   | MR. DENNIS SPACE                     |
| Street & Number   | P.O. Box 8                           |
| Post Office, State, & ZIP Code                              | South Bay, FL 33476                  |
| Postage   | \$                                   |
| Certified Fee   |                                      |
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Dennis Space, Gen. Mgr.  
Okeelanta Power, CP  
P O Box 8  
South Bay, FL  
33493

4a. Article Number

P 265 659 205

4b. Service Type

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7. Date of Delivery

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*[Signature]*

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| Sent to   |    | Dennis Space    |
| Street & Number   |    | Okeelanta Power |
| Post Office, State, & ZIP Code                              |    | South Bay, FL   |
| Postage   | \$ |                 |
| Certified Fee   |    |                 |
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| Restricted Delivery Fee                                     |    |                 |
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|   |    | PSD-FI-1962     |

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3. Article Addressed to:  
*James Meriwether, Env. Mgr.*  
*Okelanta Power, LP*  
*P.O. Box 8*  
*South Bay, FL*  
*33493*

4a. Article Number  
*P 265 659 117*

4b. Service Type  
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 Express Mail  Insured  
 Return Receipt for Merchandise  COD

7. Date of Delivery  
*12-30-96*

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*[Signature]*

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| <i>James Meriwether</i>                                     |                 |
| Street & Number   |                 |
| <i>Okelanta Power</i>                                       |                 |
| Post Office, State, & ZIP Code                              |                 |
| <i>South Bay, FL</i>  |                 |
| Postage   | \$              |
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| 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  | <i>12-24-96</i> |
| <i>0990332-004-AC</i>                                       |                 |

PS Form 3800, April 1995

**FINAL DETERMINATION**  
Okeelanta Cogeneration Plant  
Modification – 74.9 “Net” MW Output

---

**INTRODUCTION**

The Department distributed a public notice package on April 13, 2001 to Okeelanta Power L.P. for the cogeneration plant located in Palm Beach County, Florida. The applicant requested modification of the basis of the restriction on electrical generating capacity of the cogeneration plant from 74.9 MW (gross) output to 74.9 MW (net) output. The Public Notice of Intent to Issue Permit was published in the April 18, 2001 issue of The Palm Beach Post. The Department received the proof of publication on April 27, 2001.

**COMMENTS/CHANGES**

No comments on the Draft Permit were received from the public, the Palm Beach County Health Department, the Southeast District Office, EPA Region 4, or the National Park Service. The applicant made the following comments.

Comment: The applicant suggested adding natural gas as an authorized fuel in the text on the placard page.

Response: Permit modification PSD-FL-196L authorized natural gas as a supplemental fuel. The Department notes that the requested change is really beyond the scope of the applicant’s original request and that there are many places in the permit where this change could be made. The Department intends to update Permit No. PSD-FL-196 for such changes during the processing of pending Project No. 0990332-014-AC, an open application requesting modification of the CO and SO<sub>2</sub> standards.

**CONCLUSION**

The final action of the Department is to issue the Final Permit with only minor typographical changes.



# Department of Environmental Protection

Jeb Bush  
Governor

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

David B. Struhs  
Secretary

May 2, 2001

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Ricardo Lima, Vice President and General Manager  
Okeelanta Power L.P.  
8001 U.S. Highway 27 South  
South Bay, Florida 33493

RE: Okeelanta Cogeneration Facility  
Project No. 0990332-015-AC  
Air Permit No. PSD-FL-196N  
Permit Modification: 74.9 MW (Gross) Output to 74.9 MW (Net) Output

Dear Mr. Lima:

On March 26, 2001, the Department received your request to change the basis of the restriction on electrical generating capacity of the cogeneration plant from "gross" to "net" output. Based on the information provided and conversations with the Department's Bureau of Air Regulation and Siting Coordination Office, this request is approved. The permit is hereby modified as shown below.

*Page 1, Placard Page: The first sentence of the second paragraph is revised to:*

"A 74.9 megawatt (gross net) electric (1-hour average), cogeneration facility (biomass – bagasse and wood waste material as the primary fuel, No. 2 fuel oil as a supplementary fuel, and low sulfur coal as an alternate fuel) located at Okeelanta Corporation's sugar mill that is 6 miles south of South Bay, off U.S. Highway 27, Palm Beach County, Florida."

*Page 5, Construction Details, Specific Condition No. 1: The second sentence of this condition is revised to:*

"The facility shall be designed, constructed, and operated so that its gross net generating capacity shall not exceed 74.9 megawatt (MW), 1-hour average, ~~except that during scheduled emission compliance and equipment performance tests.~~"

*Page 7, Operational and Emission Restrictions, Specific Condition No. 11: The second sentence of this condition is revised to:*

"The facility shall not exceed 74.9 (gross net) megawatt generating capacity, 1-hour average, ~~except during emission compliance and equipment performance tests.~~"

This permit modification is issued pursuant to Chapter 403 of the Florida Statutes. Attached is original Permit No. PSD-FL-196 and a brief permitting history (Attachment A). A copy of this letter shall be filed with the referenced permit and shall become part of the permit.

Any party to this order (permit modification) has the right to seek judicial review of it under Section 120.68 of the Florida Statutes by filing a notice of appeal under Rule 9.110 of the Florida Rules of

"More Protection, Less Process"

Printed on recycled paper.

Appellate Procedure with the clerk of the Department of Environmental Protection in the Office of General Counsel, Mail Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000, and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The notice must be filed within thirty (30) days after this order is filed with the clerk of the Department.

Sincerely,



Howard L. Rhodes, Director  
Division of Air Resources Management

**CERTIFICATE OF SERVICE**

The undersigned duly designated deputy agency clerk hereby certifies that this Notice of Final Permit was sent by certified mail (\*) and copies were mailed by U.S. Mail before the close of business on

5/4/01 to the person(s) listed:

Mr. Ricardo Lima, OkPLP\*  
Mr. James Meriwether, OkPLP  
Mr. David Buff, Golder Associates  
Mr. David Dee, Landers and Parsons  
Mr. James Stormer, PBCHD  
Mr. Buck Oven, Siting Coordination Office  
Mr. Ron Blackburn, SD Office  
Mr. Gregg Worley, EPA Region 4  
Mr. John Bunyak, NPS

Clerk Stamp

**FILING AND ACKNOWLEDGMENT**  
**FILED**, on this date, pursuant to §120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Charlatta J. Hayes 5/4/01  
(Clerk) Date



## ATTACHMENT A - PERMITTING HISTORY THROUGH APRIL 2001

**Air Permit No. PSD-FL-196:** Department issued original PSD permit on 09/27/93.

**Project No. 0990332-001-AC (PSD-FL-196A):** OkPLP requested a limit on yard trash of 30% by weight to avoid most of the applicable requirements of 40 CFR 60, Subpart Ea. Department issued modification on 02/20/96, which added specific condition 12A.

**Project No. 0990332-002-AC (PSD-FL-196B):** OkPLP requested an extension of time for the simultaneous operation of the cogeneration boilers with the sugar mill boilers in order to perfect the steam interconnection. Department issued modification on 06/14/96. Specific condition nos. 17 and 18 were revised to extend simultaneous operation beyond the first year of commercial startup of the cogeneration boilers to April 1, 1997. The permit required the sugar mill boilers to be rendered incapable of operation no later than January 1, 1999.

**Project No. 0990332-003-AC (PSD-FL-196C):** OkPLP requested approval to fire tire-derived fuel. Department issued modification on 01/22/97 to allow for a demonstration period to collect emissions data.

**Project No. 0990332-004-AC (PSD-FL-196D):** OkPLP requested a revision to the emission standard and testing requirements for sulfuric acid mist. Department issued modification on 04/18/97, which retained the emission standard, but revised the test method to 8 (modified).

**Project No. 0990332-005-AC (PSD-FL-196E):** OkPLP requested an extension of time for the simultaneous operation of the cogeneration boilers with the sugar mill boilers in order to perfect the steam interconnection. Department issued modification on 04/05/97. Specific condition nos. 17 and 18 were revised to extend simultaneous operation to April 1, 1998. The permit required the sugar mill boilers to be rendered incapable of operation no later than January 1, 1999.

**Project No. 0990332-006-AC (PSD-FL-196F):** OkPLP requested a modification of the emissions standards for carbon monoxide, lead, and mercury. Department issued modification on 10/24/97.

**Project No. 0990332-007-AC (PSD-FL-196G):** OkPLP requested amendment to specific condition #11 to clarify the performance test schedule. Department issued modification on 05/08/97.

**Project No. 0990332-008-AC (PSD-FL-196H):** OkPLP requested a revision to the 24-hour rolling average for determining peak electrical generation. Application was withdrawn on 02/03/97.

**Project No. 0990332-009-AC (PSD-FL-196I):** OkPLP requested an extension of time for the simultaneous operation of the cogeneration boilers with the sugar mill boilers in order to provide additional time to ensure that the interconnections (bagasse fuel and steam systems) were commercially and operationally reliable. Department issued modification on 06/16/98. Specific condition nos. 17 and 18 were revised to extend simultaneous operation to April 1, 2000. The permit required the sugar mill boilers to be rendered incapable of operation no later than April 1, 2001.

**Project No. 0990332-010-AC (PSD-FL-196J):** OkPLP requested a revision to the CO emissions standard. Department issued modification of the CO averaging period on 06/24/99.

**Project No. 0990332-011-AC (PSD-FL-196K):** OkPLP requested a modification to extend operation of Okeelanta Corporation's sugar mill boilers as standby units for the cogeneration boilers due to litigation with FPL. Department issued modification on 11/06/00.

**Project No. 0990332-012-AC:** OkPLP requested approval to install particulate dust collectors prior to the electrostatic precipitators. Department issued approval letter on 12/22/99. Approval incorporated into modification PSD-FL-196K.

**Project No. 0990332-012-AC (PSD-FL-196L):** OkPLP requested to add natural gas as a supplemental fuel to the biomass boilers. Department issued Final Permit in January 2001.

**Project No. 0990332-012-AC (PSD-FL-196M):** OkPLP requested modification of the CO and SO<sub>2</sub> emissions standards. This project is pending.

**Project No. 0990332-012-AC (PSD-FL-196N):** OkPLP requested modification to change restriction from 74.9 "Gross" MW Output to 74.9 "Net" MW Output. This is the current project.

## Memorandum

# Florida Department of Environmental Protection

---

TO: Howard L. Rhodes

THROUGH: Clair Fancy *CHF*  
Al Linero *AL* 5/3

FROM: Jeff Koerner *JK*

DATE: May 2, 2001

SUBJECT: Project No. 0990332-015-AC  
Air Permit No. PSD-FL-196N  
Okeelanta Cogeneration Plant  
Permit Modification – Revise 74.9 MW (Gross) to 74.9 MW (Net) Output

The Final Permit modification is attached for your approval and signature for Okeelanta Power L.P.'s cogeneration plant located in Palm Beach County, Florida. The letter modification approves the request to revise the basis of the restriction on electrical generating capacity of the cogeneration plant from 74.9 MW (gross) output to 74.9 MW (net) output. The Public Notice of Intent to Issue Permit was published in the April 18, 2001 issue of The Palm Beach Post. As stated in the attached Final Determination, no comments on the Draft Permit were received from the public, the Palm Beach County Health Department, the Southeast District Office, EPA Region 4, or the National Park Service. The applicant made minor comments as discussed in the Final Determination. Only minor typographical changes were made.

I recommend your approval and signature. Day 90 for this project is July 20, 2001.

CHF/AAL/jfk

Attachments

**SENDER: COMPLETE THIS SECTION**

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Ricardo Lima  
 Vice President & Gen. Mgr.  
 Okeelanta Power L.P.  
 8001 U.S. Highway 27 South  
 South Bay, FL 33493

2. Article Number (Copy from service label)  
 7000 0600 0026 4129 9464

PS Form 3811, July 1999

Domestic Return Receipt

102595-99-M-1789

**COMPLETE THIS SECTION ON DELIVERY**

A. Received by (Please Print Clearly) *Kathleen Yerkes* B. Date of Delivery *5/16/01*

C. Signature *X Kathleen Yerkes*  Agent  Addressee

D. Is delivery address different from item 1?  Yes  No  
 If YES, enter delivery address below:

*P.O. Box 8  
 S Bay, FL 33493*

3. Service Type

- Certified Mail  Express Mail  
 Registered  Return Receipt for Merchandise  
 Insured Mail  C.O.D.

4. Restricted Delivery? (Extra Fee)  Yes

**U.S. Postal Service**  
**CERTIFIED MAIL RECEIPT**  
 (Domestic Mail Only; No Insurance Coverage Provided)

7000 0600 0026 4129 9464

|   |    |   |
|---|----|---|
| Postage   | \$ | <i>Okeelanta</i><br><i>Yerkes</i><br>Postmark<br>Here |
| Certified Fee                                     |    |   |
| Return Receipt Fee<br>(Endorsement Required)      |    |   |
| Restricted Delivery Fee<br>(Endorsement Required) |    |   |
| Total Postage & Fees                              | \$ |   |

Recipient's Name (Please Print Clearly) (to be completed by mailer)

*Mr. Ricardo Lima*  
 Street, Apt. No., or P.O. Box No.  
 8001 U.S. Highway 27 South  
 City, State, ZIP+4  
 South Bay, FL 33493

PS Form 3800, February 2000

See Reverse for Instructions

LANDERS & PARSONS, P.A.

ATTORNEYS AT LAW

DAVID S. DEE  
DIANE K. KIESLING  
JOSEPH W. LANDERS, JR.  
JOHN T. LAVIA, III  
FRED A. McCORMACK  
PHILIP S. PARSONS  
LESLIE J. PAUGH  
ROBERT SCHEFFEL WRIGHT

VICTORIA J. TSCHINKEL  
SENIOR CONSULTANT  
(NOT A MEMBER OF THE FLORIDA BAR)

April 25, 2001

MAILING ADDRESS:  
POST OFFICE BOX 271  
TALLAHASSEE, FL 32302-0271

310 WEST COLLEGE AVENUE  
TALLAHASSEE, FL 32301

TELEPHONE (850) 681-0311  
TELECOPY (850) 224-5595  
www.landersondparsons.com

VIA HAND DELIVERY

Mr. Jeffery F. Koerner, P.E.  
New Source Review Section  
Florida Department of Environmental  
Protection  
Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

RECEIVED

APR 27 2001

BUREAU OF AIR REGULATION

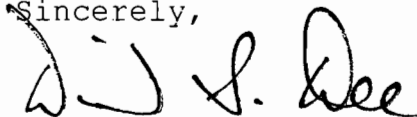
Re: Okeelanta Power Limited Partnership  
Intent to Issue Air Construction Permit Modification  
Project No. 0990332-015-AC  
Draft Permit PSD-FL-196N

Dear Mr. Koerner:

Attached for your file is a copy of the Proof of Publication for the public notice that was published on April 18, 2001, for DEP's Intent to Issue Air Construction Permit Modification in the above-referenced case. This notice was published in The Palm Beach Post, in Palm Beach County, Florida.

Please let me know if you have any questions.

Sincerely,



David S. Dee

Attachment

cc: Bill Tarr  
Clair Fancy (w/o attachment)

J. Stamer, PBCHD  
B. Oum  
R. Blackburn, SD  
J. Worley, EPA  
A. Demyle, NPS

# THE PALM BEACH POST

Published Daily and Sunday  
West Palm Beach, Palm Beach County, Florida

## PROOF OF PUBLICATION

STATE OF FLORIDA  
COUNTY OF PALM BEACH

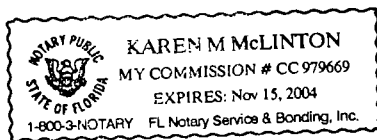
Before the undersigned authority personally appeared Tyler Dixon who on oath says that she is Classified Advertising Manager, Inside Sales of The Palm Beach Post, a daily and Sunday newspaper published at West Palm Beach in Palm Beach County, Florida; that the attached copy of advertising, being a Notice in the matter of Intent to Issue Air Construction Permit -- in the Court, was published in said newspaper in the issues of April 18, 2001.

Affiant further says that the said The Post is a newspaper published at West Palm Beach, in said Palm Beach County, Florida, and that the said newspaper has heretofore been continuously published in said Palm Beach County, Florida, daily and Sunday and has been entered as second class mail matter at the post office in West Palm Beach, in said Palm Beach County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that she/he has neither paid nor promised any person, firm or corporation any discount rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

Sworn to and subscribed before this 18 day of April A.D. 2001.

Personally known XX or Produced Identification \_\_\_\_\_

Type of Identification Produced \_\_\_\_\_



# RECEIVED

APR 27 2001

BUREAU OF AIR REGULATION

NO. 319916  
PUBLIC NOTICE OF INTENT  
TO ISSUE AIR CONSTRUCTION  
PERMIT MODIFICATION  
STATE OF FLORIDA  
DEPARTMENT OF  
ENVIRONMENTAL  
PROTECTION  
Project No. 0990332-015-AC  
Draft Air Permit No.  
PSD-FL-196N  
Okeelanta Power L.P.  
Cogeneration Plant  
Palm Beach County  
The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit modification to Okeelanta Power L.P. for the cogeneration plant located near Highway 27, approximately 6 miles south of South Bay in Palm Beach County, Florida. The applicant's authorized representative is Ricardo Lima, Vice President and General Manager of Okeelanta Power L.P. The mailing address is 8001 U.S. Highway 27 South, South Bay, Florida 33499.  
The applicant requests a revision of the restriction on the electrical generating capacity of the cogeneration plant from 74.9 MW (gross) output to 74.9 MW (net) output. Some electricity would be generated and used within the facility and only net production sold to the electrical power grid would count against the existing limit. The change will not affect control equipment, emissions standards, heat input capacity, monitoring conditions or other requirements associated with emissions or previous determinations of the Best Available Control Technology. The Department will approve the request and issue the final permit with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions. The Department will accept written comments concerning the proposed permit issuance action for a period of fourteen (14) days from the date of publication of this Public Notice of Intent to Issue Air Construction Permit Modification. Written comments should be provided to the Department's Bureau of Air Regulation at 2800 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.  
The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57 of the Florida Statute (F.S.), before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Mediation is not available in this proceeding. A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen (14) days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under Section 120.60(3), F.S., must be filed within fourteen (14) days of publication of the public notice or within fourteen (14) days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), F.S., however, any person who asked the Department for notice of agency action may file a petition within fourteen (14) days of receipt of that notice, regardless of the date of publication of the

petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code (F.A.C.).

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

A complete project file is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Dept. of Environmental Protection  
Bureau of Air Regulation  
New Source Review Section  
Suite 4, 111 S. Magnolia Drive  
Tallahassee, Florida 32301  
Telephone: 850/488-0114  
Dept. of Environmental Protection  
South District Office  
Air Resources Section

2295 Victoria Avenue,  
Suite 364  
Fort Myers, Florida  
33901-3381  
Telephone: 941/332-8975  
Palm Beach County  
Health Dept  
Air Pollution Control Section  
901 Evernia Street  
West Palm Beach,  
Florida 33401  
Telephone: 561/355-3136

The complete project file includes the application, technical evaluations, draft permit modification, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Administrator of the New Source Review Section at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301, or call 850/488-0114, for additional information.

PUB: The Palm Beach Post  
April 18, 2001



Jeb Bush  
Governor

# Department of Environmental Protection

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

David B. Struhs  
Secretary

April 12, 2001

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Ricardo Lima, Vice President and General Manager  
Okeelanta Power L.P.  
8001 U.S. Highway 27 South  
South Bay, Florida 33493

Re: Project No. 0990332-015-AC (PSD-FL-196N)  
Okeelanta Cogeneration Plant  
Permit Modification – Revise 74.9 MW (Gross) to 74.9 MW (Net) Output

Dear Mr. Lima:

Enclosed is one copy of the draft air construction permit modification for the Okeelanta Power's cogeneration plant located in Palm Beach County, Florida. The proposed modification will change the plant's restriction of 74.9 MW generating capacity from a "gross" to "net" basis. The Department's Preliminary Determination, Intent to Issue Air Construction Permit and the Public Notice of Intent to Issue Air Construction Permit are also included.

The Public Notice of Intent to Issue Air Construction Permit must be published one time only, as soon as possible, in the legal advertisement section of a newspaper of general circulation in the area affected, pursuant to the requirements Chapter 50, Florida Statutes. Proof of publication, i.e., newspaper affidavit, must be provided to the Department's Bureau of Air Regulation office within seven days of publication. Failure to publish the notice and provide proof of publication may result in the denial of the permit.

Please submit any written comments you wish to have considered concerning the Department's proposed action to A. A. Linero, P.E., Administrator, New Source Review Section at the above letterhead address. If you have any other questions, please contact Jeff Koerner at 850/921-9536.

Sincerely,

C. H. Fancy, P.E., Chief,  
Bureau of Air Regulation

CHF/AAL/jfk

Enclosures

"More Protection, Less Process"

Printed on recycled paper.

In the Matter of an  
Application for Permit by:

Mr. Ricardo Lima, Vice President and General Manager  
Okeelanta Power L.P.  
8001 U.S. Highway 27 South  
South Bay, Florida 33493

Project No. 0990332-015-AC  
Air Permit No. PSD-FL-196N  
Okeelanta Cogeneration Plant  
Palm Beach County  
Modification to 74.9 MW (Net)

### **INTENT TO ISSUE AIR CONSTRUCTION PERMIT**

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit modification (copy attached) for the proposed project, detailed in the application specified above and the enclosed Project Evaluation and Preliminary Determination, for the reasons stated below.

On March 26, 2001, the Department received an application from Okeelanta Power L.P. to modify Air Permit No. PSD-FL-196 for their cogeneration plant located near Highway 27, approximately 6 miles south of South Bay in Palm Beach County, Florida. The applicant requests a revision of the restriction on the electrical generating capacity of the cogeneration plant from 74.9 MW (gross) output to 74.9 MW (net) output. Some electricity would be generated and used within the facility and only net production sold to the electrical power grid would count against the limit. The Department has permitting jurisdiction under the provisions of Chapter 403 of the Florida Statutes (F.S.) and Chapters 62-4, 62-210, and 62-212 of the Florida Administrative Code (F.A.C.). The above actions are not exempt from permitting procedures. The Department has determined that a permit modification is required because the request is to modify terms of the initial PSD air construction permit.

The Department intends to issue this air construction permit based on the belief that reasonable assurances have been provided to indicate that operation of these emission units will not adversely impact air quality, and the emission units will comply with all appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297, F.A.C.

Pursuant to Section 403.815, F.S., and Rule 62-110.106(7)(a)1., F.A.C., you (the applicant) are required to publish at your own expense the enclosed Public Notice of Intent to Issue Air Construction Permit. The notice shall be published one time only in the legal advertisement section of a newspaper of general circulation in the area affected. Rule 62-110.106(7)(b), F.A.C., requires that the applicant cause the notice to be published as soon as possible after notification by the Department of its intended action. For the purpose of these rules, "publication in a newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. If you are uncertain that a newspaper meets these requirements, please contact the Department at the address or telephone number listed below. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400 (Telephone: 850/488-0114; Fax 850/ 922-6979). You must provide proof of publication within seven days of publication, pursuant to Rule 62-110.106(5), F.A.C. No permitting action for which published notice is required shall be granted until proof of publication of notice is made by furnishing a uniform affidavit in substantially the form prescribed in section 50.051, F.S. to the office of the Department issuing the permit. Failure to publish the notice and provide proof of publication may result in the denial of the permit pursuant to Rules 62-110.106(9) and (11), F.A.C.

The Department will issue the final permit with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments concerning the proposed permit issuance action for a period of fourteen (14) days from the date of publication of Public Notice of Intent to Issue Air Permit. Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public



inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57, F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen (14) days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under Section 120.60(3), F.S. must be filed within fourteen (14) days of publication of the public notice or within fourteen (14) days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), F.S., however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

Mediation is not available in this proceeding.

In addition to the above, a person subject to regulation has a right to apply for a variance from or waiver of the requirements of particular rules, on certain conditions, under Section 120.542, F.S. The relief provided by this state statute applies only to state rules, not statutes, and not to any federal regulatory requirements. Applying for a variance or waiver does not substitute or extend the time for filing a petition for an administrative hearing or exercising any other right that a person may have in relation to the action proposed in this notice of intent.

The application for a variance or waiver is made by filing a petition with the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. The petition must specify the following information: (a) The name, address, and telephone number of the petitioner; (b) The name, address, and telephone number of the attorney or qualified representative of the petitioner, if any; (c) Each rule or portion of a rule from which a variance or waiver is requested; (d) The citation to the statute underlying (implemented by) the rule identified in (c) above; (e) The type of action requested; (f) The specific facts that would justify a variance or waiver for the petitioner; (g) The reason why the variance or waiver would serve the purposes of the underlying statute (implemented by the rule); and (h) A statement whether the variance or waiver is permanent or temporary and, if temporary, a statement of the dates showing the duration of the variance or waiver requested.

The Department will grant a variance or waiver when the petition demonstrates both that the application of the rule would create a substantial hardship or violate principles of fairness, as each of those terms is defined in Section 120.542(2), F.S., and that the purpose of the underlying statute will be or has been achieved by other means by the petitioner.

Persons subject to regulation pursuant to any federally delegated or approved air program should be aware that Florida is specifically not authorized to issue variances or waivers from any requirements of any such federally delegated or approved program. The requirements of the program remain fully enforceable by the Administrator of the EPA and by any person under the Clean Air Act unless and until the Administrator separately approves any variance or waiver in accordance with the procedures of the federal program.

Executed in Tallahassee, Florida.



C. H. Fancy, P.E., Chief  
Bureau of Air Regulation

**CERTIFICATE OF SERVICE**

The undersigned duly designated deputy agency clerk hereby certifies that this Intent to Issue Air Construction Permit Modification (including the Public Notice of Intent to Issue, Project Evaluation and Preliminary Determination, and the Draft Modification) was sent by certified mail (\*) and copies were mailed by U.S. Mail before the close of business on 4/13/01 to the persons listed:

Mr. Ricardo Lima, OkPLP\*  
Mr. James Meriwether, OkPLP  
Mr. David Buff, Golder Associates  
Mr. James Stormer, PBCHD

Mr. Buck Oven, Siting Coordination Office  
Mr. Ron Blackburn, SD Office  
Mr. Gregg Worley, EPA Region 4  
Mr. John Bunyak, NPS

Clerk Stamp

**FILING AND ACKNOWLEDGMENT FILED**, on this date, pursuant to §120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Martha Jane Wise 4/13/01  
(Clerk) (Date)

**PUBLIC NOTICE OF INTENT TO ISSUE  
AIR CONSTRUCTION PERMIT MODIFICATION**

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Project No. 0990332-015-AC  
Draft Air Permit No. PSD-FL-196N

Okeelanta Power L.P. Cogeneration Plant  
Palm Beach County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit modification to Okeelanta Power L.P. for the cogeneration plant located near Highway 27, approximately 6 miles south of South Bay in Palm Beach County, Florida. The applicant's authorized representative is Ricardo Lima, Vice President and General Manager of Okeelanta Power L.P. The mailing address is 8001 U.S. Highway 27 South, South Bay, Florida 33493..

The applicant requests a revision of the restriction on the electrical generating capacity of the cogeneration plant from 74.9 MW (gross) output to 74.9 MW (net) output. Some electricity would be generated and used within the facility and only net production sold to the electrical power grid would count against the existing limit. The change will not alter control equipment, emissions standards, heat input capacity, monitoring conditions or other requirements associated with emissions or previous determinations of the Best Available Control Technology. The Department will approve the request and issue the final permit with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments concerning the proposed permit issuance action for a period of fourteen (14) days from the date of publication of this Public Notice of Intent to Issue Air Construction Permit Modification. Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57 of the Florida Statutes (F.S.), before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Mediation is not available in this proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen (14) days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under Section 120.60(3), F.S., must be filed within fourteen (14) days of publication of the public notice or within fourteen (14) days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), F.S., however, any person who asked the Department for notice of agency action may file a petition within fourteen (14) days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code (F.A.C.).

**NOTICE TO BE PUBLISHED IN THE NEWSPAPER**

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

A complete project file is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

|   |   |  |
|---|---|--|
| Dept. of Environmental Protection<br>Bureau of Air Regulation<br>New Source Review Section<br>Suite 4, 111 S. Magnolia Drive<br>Tallahassee, Florida 32301<br>Telephone: 850/488-0114 | Dept. of Environmental Protection<br>South District Office<br>Air Resources Section<br>2295 Victoria Avenue, Suite 364<br>Fort Myers, Florida 33901-3381<br>Telephone: 941/332-6975 | Palm Beach County Health Dept.<br>Air Pollution Control Section<br>901 Evernia Street<br>West Palm Beach, Florida 33401<br>Telephone: 561/355-3136 |
|---|---|--|

The complete project file includes the application, technical evaluations, draft permit modification, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Administrator of the New Source Review Section at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301, or call 850/488-0114, for additional information.

NOTICE TO BE PUBLISHED IN THE NEWSPAPER

## PROJECT EVALUATION AND PRELIMINARY DETERMINATION

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### APPLICATION

On March 26, 2001, we received an application from Okeelanta Power L.P. to modify Air Permit No. PSD-FL-196 for their cogeneration plant located near Highway 27, approximately 6 miles south of South Bay in Palm Beach County, Florida. The applicant requests a revision of the restriction on the electrical generating capacity of the cogeneration plant from 74.9 MW (gross) output to 74.9 MW (net) output. Some electricity would be generated and used within the facility and only net production sold to the electrical power grid would count against the limit.

### REVIEW

Prior to submittal of this application, representatives of Okeelanta met with the representatives of the Department's Division of Air Resources Management and Siting Coordination Office to discuss the feasibility of such a request. As a result of this meeting, the Siting Coordination Office responded in a letter (March 9, 2001) that such a change could be made without invoking the Florida Electrical Power Plant Siting Act, provided:

- Okeelanta could adequately demonstrate methods that would be used to monitor the production of electricity such that no more than 74.9 MW would be generated *based on a 15-minute average*, and
- Okeelanta, if required, would obtain a permit modification from the Department's Bureau of Air Regulation prior to making the change.

In the application for permit modification, Okeelanta stated that it believed the 15-minute average was "erroneously" included as a proposed limitation because the plant has monitored electricity production on a 1-hour average since beginning operations. A review of the original PSD permit indicates that the restriction was based on a *1-hour averaging period*. Also, the restriction was specifically requested and established in the permit to clarify that the new plant was not subject to power plant site certification requirements. Based on recent conversations with the Siting Coordination Office, it is our understanding that the current 1-hour averaging time is sufficient to allow the change from gross to net power output without invoking the Florida Electrical Power Plant Siting Act. The 15-minute average was only included as a reminder that the averaging period should be on a short-term basis.

Okeelanta indicates that the only physical change that may occur is a heat exchanger upgrade for the electrical generator to allow for increased capacity during the summer months. The facility is not requesting any changes to emission levels or heat input rates, as it does not expect increases in either. The existing monitoring should be adequate because the plant has monitored electrical production on a 1-hour basis since commencing operations.

### CONCLUSION

The Siting Coordination Office indicates that the requested change would not alter the cogeneration plant's status with regard to the Florida Electrical Power Plant Siting Act. Because this was the intent of the original restriction, the requested change is approved. Note that I have also deleted the following inappropriate text related to the generating capacity restriction, "... except during emission compliance and equipment performance tests." The change is a permit modification and requires a Public Notice because it is a modification of terms in the PSD permit. However, the change is not related to control equipment, emissions standards, heat input capacity, monitoring or other requirements associated with emissions or the BACT determination, so a 14-day notice and comment period seems appropriate.

# (DRAFT MODIFICATION)

(Date)

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Ricardo Lima, Vice President and General Manager  
Okeelanta Power L.P.  
8001 U.S. Highway 27 South  
South Bay, Florida 33493

RE: Okeelanta Cogeneration Facility  
Project No. 0990332-015-AC (PSD-FL-196N)  
Permit Modification - 74.9 MW (Gross) to 74.9 MW (Net) Output

Dear Mr. Lima:

On March 26, 2001, the Department received your request to change the basis of the restriction on electrical generating capacity of the cogeneration plant from "gross" to "net" output. Based on the information provided and conversations with the Department's Bureau of Air Regulation and Siting Coordination Office, this request is approved. The permit is hereby modified as shown below.

*Page 1, Placard Page: The first sentence of the second paragraph is revised to:*

"A 74.9 megawatt (gross net) electric (1-hour average), cogeneration facility (biomass – bagasse and wood waste material as the primary fuel, No. 2 fuel oil as a supplementary fuel, and low sulfur coal as an alternate fuel) located at Okeelanta Corporation's sugar mill that is 6 miles south of South Bay, off U.S. Highway 27, Palm Beach County, Florida."

*Page 5, Construction Details, Specific Condition No. 1: The second sentence of this condition is revised to:*

"The facility shall be designed, constructed, and operated so that its gross net generating capacity shall not exceed 74.9 megawatt (MW), 1-hour average, ~~except that during scheduled emission compliance and equipment performance tests.~~"

*Page 7, Operational and Emission Restrictions, Specific Condition No. 11: The second sentence of this condition is revised to:*

"The facility shall not exceed 74.9 (gross net) megawatt generating capacity, 1-hour average, ~~except during emission compliance and equipment performance tests.~~"

This permit modification is issued pursuant to Chapter 403 of the Florida Statutes. Attached is original Permit No. PSD-FL-196 and a brief permitting history (Attachment A). A copy of this letter shall be filed with the referenced permit and shall become part of the permit.

Any party to this order (permit modification) has the right to seek judicial review of it under Section 120.68 of the Florida Statutes by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department of Environmental Protection in the Office of General Counsel, Mail Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-

3000, and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The notice must be filed within thirty (30) days after this order is filed with the clerk of the Department.

Sincerely,

(DRAFT)

---

Howard L. Rhodes, Director  
Division of Air Resources Management

**CERTIFICATE OF SERVICE**

The undersigned duly designated deputy agency clerk hereby certifies that this Notice of Final Permit was sent by certified mail (\*) and copies were mailed by U.S. Mail before the close of business on \_\_\_\_\_ to the person(s) listed:

Mr. Ricardo Lima, OkPLP\*  
Mr. James Meriwether, OkPLP  
Mr. David Buff, Golder Associates  
Mr. James Stormer, PBCHD  
Mr. Buck Oven, Siting Coordination Office  
Mr. Ron Blackburn, SD Office  
Mr. Gregg Worley, EPA Region 4  
Mr. John Bunyak, NPS

Clerk Stamp

**FILED AND ACKNOWLEDGMENT**  
**FILED**, on this date, pursuant to §120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

---

(Clerk)

---

Date)



# Department of Environmental Protection

Jeb Bush  
Governor

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

David B. Struhs  
Secretary

April 12, 2001

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Ricardo Lima, Vice President and General Manager  
Okeelanta Power L.P.  
8001 U.S. Highway 27 South  
South Bay, Florida 33493

Re: Project No. 0990332-015-AC (PSD-FL-196N)  
Okeelanta Cogeneration Plant  
Permit Modification – Revise 74.9 MW (Gross) to 74.9 MW (Net) Output

Dear Mr. Lima:

Enclosed is one copy of the draft air construction permit modification for the Okeelanta Power's cogeneration plant located in Palm Beach County, Florida. The proposed modification will change the plant's restriction of 74.9 MW generating capacity from a "gross" to "net" basis. The Department's Preliminary Determination, Intent to Issue Air Construction Permit and the Public Notice of Intent to Issue Air Construction Permit are also included.

The Public Notice of Intent to Issue Air Construction Permit must be published one time only, as soon as possible, in the legal advertisement section of a newspaper of general circulation in the area affected, pursuant to the requirements Chapter 50, Florida Statutes. Proof of publication, i.e., newspaper affidavit, must be provided to the Department's Bureau of Air Regulation office within seven days of publication. Failure to publish the notice and provide proof of publication may result in the denial of the permit.

Please submit any written comments you wish to have considered concerning the Department's proposed action to A. A. Linero, P.E., Administrator, New Source Review Section at the above letterhead address. If you have any other questions, please contact Jeff Koerner at 850/921-9536.

Sincerely,

C. H. Fancy, P.E., Chief,  
Bureau of Air Regulation

CHF/AAL/jfk

Enclosures

"More Protection, Less Process"

Printed on recycled paper.



In the Matter of an  
Application for Permit by:

Mr. Ricardo Lima, Vice President and General Manager  
Okeelanta Power L.P.  
8001 U.S. Highway 27 South  
South Bay, Florida 33493

Project No. 0990332-015-AC  
Air Permit No. PSD-FL-196N  
Okeelanta Cogeneration Plant  
Palm Beach County  
Modification to 74.9 MW (Net)

### **INTENT TO ISSUE AIR CONSTRUCTION PERMIT**

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit modification (copy attached) for the proposed project, detailed in the application specified above and the enclosed Project Evaluation and Preliminary Determination, for the reasons stated below.

On March 26, 2001, the Department received an application from Okeelanta Power L.P. to modify Air Permit No. PSD-FL-196 for their cogeneration plant located near Highway 27, approximately 6 miles south of South Bay in Palm Beach County, Florida. The applicant requests a revision of the restriction on the electrical generating capacity of the cogeneration plant from 74.9 MW (gross) output to 74.9 MW (net) output. Some electricity would be generated and used within the facility and only net production sold to the electrical power grid would count against the limit. The Department has permitting jurisdiction under the provisions of Chapter 403 of the Florida Statutes (F.S.) and Chapters 62-4, 62-210, and 62-212 of the Florida Administrative Code (F.A.C.). The above actions are not exempt from permitting procedures. The Department has determined that a permit modification is required because the request is to modify terms of the initial PSD air construction permit.

The Department intends to issue this air construction permit based on the belief that reasonable assurances have been provided to indicate that operation of these emission units will not adversely impact air quality, and the emission units will comply with all appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297, F.A.C.

Pursuant to Section 403.815, F.S., and Rule 62-110.106(7)(a)1., F.A.C., you (the applicant) are required to publish at your own expense the enclosed Public Notice of Intent to Issue Air Construction Permit. The notice shall be published one time only in the legal advertisement section of a newspaper of general circulation in the area affected. Rule 62-110.106(7)(b), F.A.C., requires that the applicant cause the notice to be published as soon as possible after notification by the Department of its intended action. For the purpose of these rules, "publication in a newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. If you are uncertain that a newspaper meets these requirements, please contact the Department at the address or telephone number listed below. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400 (Telephone: 850/488-0114; Fax 850/ 922-6979). You must provide proof of publication within seven days of publication, pursuant to Rule 62-110.106(5), F.A.C. No permitting action for which published notice is required shall be granted until proof of publication of notice is made by furnishing a uniform affidavit in substantially the form prescribed in section 50.051, F.S. to the office of the Department issuing the permit. Failure to publish the notice and provide proof of publication may result in the denial of the permit pursuant to Rules 62-110.106(9) and (11), F.A.C.

The Department will issue the final permit with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments concerning the proposed permit issuance action for a period of fourteen (14) days from the date of publication of Public Notice of Intent to Issue Air Permit. Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public

inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57, F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen (14) days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under Section 120.60(3), F.S. must be filed within fourteen (14) days of publication of the public notice or within fourteen (14) days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), F.S., however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

Mediation is not available in this proceeding.

In addition to the above, a person subject to regulation has a right to apply for a variance from or waiver of the requirements of particular rules, on certain conditions, under Section 120.542, F.S. The relief provided by this state statute applies only to state rules, not statutes, and not to any federal regulatory requirements. Applying for a variance or waiver does not substitute or extend the time for filing a petition for an administrative hearing or exercising any other right that a person may have in relation to the action proposed in this notice of intent.

The application for a variance or waiver is made by filing a petition with the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. The petition must specify the following information: (a) The name, address, and telephone number of the petitioner; (b) The name, address, and telephone number of the attorney or qualified representative of the petitioner, if any; (c) Each rule or portion of a rule from which a variance or waiver is requested; (d) The citation to the statute underlying (implemented by) the rule identified in (c) above; (e) The type of action requested; (f) The specific facts that would justify a variance or waiver for the petitioner; (g) The reason why the variance or waiver would serve the purposes of the underlying statute (implemented by the rule); and (h) A statement whether the variance or waiver is permanent or temporary and, if temporary, a statement of the dates showing the duration of the variance or waiver requested.

The Department will grant a variance or waiver when the petition demonstrates both that the application of the rule would create a substantial hardship or violate principles of fairness, as each of those terms is defined in Section 120.542(2), F.S., and that the purpose of the underlying statute will be or has been achieved by other means by the petitioner.

Persons subject to regulation pursuant to any federally delegated or approved air program should be aware that Florida is specifically not authorized to issue variances or waivers from any requirements of any such federally delegated or approved program. The requirements of the program remain fully enforceable by the Administrator of the EPA and by any person under the Clean Air Act unless and until the Administrator separately approves any variance or waiver in accordance with the procedures of the federal program.

Executed in Tallahassee, Florida.



C. H. Fancy, P.E., Chief  
Bureau of Air Regulation

#### CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this Intent to Issue Air Construction Permit Modification (including the Public Notice of Intent to Issue, Project Evaluation and Preliminary Determination, and the Draft Modification) was sent by certified mail (\*) and copies were mailed by U.S. Mail before the close of business on 4/13/01 to the persons listed:

Mr. Ricardo Lima, OkPLP\*  
Mr. James Meriwether, OkPLP  
Mr. David Buff, Golder Associates  
Mr. James Stormer, PBCHD

Mr. Buck Oven, Siting Coordination Office  
Mr. Ron Blackburn, SD Office  
Mr. Gregg Worley, EPA Region 4  
Mr. John Bunyak, NPS

Clerk Stamp

**FILING AND ACKNOWLEDGMENT FILED**, on this date, pursuant to §120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Martha Janelle Wise 4/13/01  
(Clerk) (Date)

**PUBLIC NOTICE OF INTENT TO ISSUE  
AIR CONSTRUCTION PERMIT MODIFICATION**

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Project No. 0990332-015-AC  
Draft Air Permit No. PSD-FL-196N

Okeelanta Power L.P. Cogeneration Plant  
Palm Beach County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit modification to Okeelanta Power L.P. for the cogeneration plant located near Highway 27, approximately 6 miles south of South Bay in Palm Beach County, Florida. The applicant's authorized representative is Ricardo Lima, Vice President and General Manager of Okeelanta Power L.P. The mailing address is 8001 U.S. Highway 27 South, South Bay, Florida 33493..

The applicant requests a revision of the restriction on the electrical generating capacity of the cogeneration plant from 74.9 MW (gross) output to 74.9 MW (net) output. Some electricity would be generated and used within the facility and only net production sold to the electrical power grid would count against the existing limit. The change will not alter control equipment, emissions standards, heat input capacity, monitoring conditions or other requirements associated with emissions or previous determinations of the Best Available Control Technology. The Department will approve the request and issue the final permit with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments concerning the proposed permit issuance action for a period of fourteen (14) days from the date of publication of this Public Notice of Intent to Issue Air Construction Permit Modification. Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57 of the Florida Statutes (F.S.), before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Mediation is not available in this proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen (14) days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under Section 120.60(3), F.S., must be filed within fourteen (14) days of publication of the public notice or within fourteen (14) days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), F.S., however, any person who asked the Department for notice of agency action may file a petition within fourteen (14) days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code (F.A.C.).

NOTICE TO BE PUBLISHED IN THE NEWSPAPER

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

A complete project file is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

|   |   |  |
|---|---|--|
| Dept. of Environmental Protection<br>Bureau of Air Regulation<br>New Source Review Section<br>Suite 4, 111 S. Magnolia Drive<br>Tallahassee, Florida 32301<br>Telephone: 850/488-0114 | Dept. of Environmental Protection<br>South District Office<br>Air Resources Section<br>2295 Victoria Avenue, Suite 364<br>Fort Myers, Florida 33901-3381<br>Telephone: 941/332-6975 | Palm Beach County Health Dept.<br>Air Pollution Control Section<br>901 Evernia Street<br>West Palm Beach, Florida 33401<br>Telephone: 561/355-3136 |
|---|---|--|

The complete project file includes the application, technical evaluations, draft permit modification, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Administrator of the New Source Review Section at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301, or call 850/488-0114, for additional information.

NOTICE TO BE PUBLISHED IN THE NEWSPAPER

## PROJECT EVALUATION AND PRELIMINARY DETERMINATION

---

### APPLICATION

On March 26, 2001, we received an application from Okeelanta Power L.P. to modify Air Permit No. PSD-FL-196 for their cogeneration plant located near Highway 27, approximately 6 miles south of South Bay in Palm Beach County, Florida. The applicant requests a revision of the restriction on the electrical generating capacity of the cogeneration plant from 74.9 MW (gross) output to 74.9 MW (net) output. Some electricity would be generated and used within the facility and only net production sold to the electrical power grid would count against the limit.

### REVIEW

Prior to submittal of this application, representatives of Okeelanta met with the representatives of the Department's Division of Air Resources Management and Siting Coordination Office to discuss the feasibility of such a request. As a result of this meeting, the Siting Coordination Office responded in a letter (March 9, 2001) that such a change could be made without invoking the Florida Electrical Power Plant Siting Act, provided:

- Okeelanta could adequately demonstrate methods that would be used to monitor the production of electricity such that no more than 74.9 MW would be generated *based on a 15-minute average*, and
- Okeelanta, if required, would obtain a permit modification from the Department's Bureau of Air Regulation prior to making the change.

In the application for permit modification, Okeelanta stated that it believed the 15-minute average was "erroneously" included as a proposed limitation because the plant has monitored electricity production on a 1-hour average since beginning operations. A review of the original PSD permit indicates that the restriction was based on a *1-hour averaging period*. Also, the restriction was specifically requested and established in the permit to clarify that the new plant was not subject to power plant site certification requirements. Based on recent conversations with the Siting Coordination Office, it is our understanding that the current 1-hour averaging time is sufficient to allow the change from gross to net power output without invoking the Florida Electrical Power Plant Siting Act. The 15-minute average was only included as a reminder that the averaging period should be on a short-term basis.

Okeelanta indicates that the only physical change that may occur is a heat exchanger upgrade for the electrical generator to allow for increased capacity during the summer months. The facility is not requesting any changes to emission levels or heat input rates, as it does not expect increases in either. The existing monitoring should be adequate because the plant has monitored electrical production on a 1-hour basis since commencing operations.

### CONCLUSION

The Siting Coordination Office indicates that the requested change would not alter the cogeneration plant's status with regard to the Florida Electrical Power Plant Siting Act. Because this was the intent of the original restriction, the requested change is approved. Note that I have also deleted the following inappropriate text related to the generating capacity restriction, "... except during emission compliance and equipment performance tests." The change is a permit modification and requires a Public Notice because it is a modification of terms in the PSD permit. However, the change is not related to control equipment, emissions standards, heat input capacity, monitoring or other requirements associated with emissions or the BACT determination, so a 14-day notice and comment period seems appropriate.

# (DRAFT MODIFICATION)

(Date)

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Ricardo Lima, Vice President and General Manager  
Okeelanta Power L.P.  
8001 U.S. Highway 27 South  
South Bay, Florida 33493

RE: Okeelanta Cogeneration Facility  
Project No. 0990332-015-AC (PSD-FL-196N)  
Permit Modification - 74.9 MW (Gross) to 74.9 MW (Net) Output

Dear Mr. Lima:

On March 26, 2001, the Department received your request to change the basis of the restriction on electrical generating capacity of the cogeneration plant from "gross" to "net" output. Based on the information provided and conversations with the Department's Bureau of Air Regulation and Siting Coordination Office, this request is approved. The permit is hereby modified as shown below.

*Page 1, Placard Page: The first sentence of the second paragraph is revised to:*

"A 74.9 megawatt (gross net) electric (1-hour average), cogeneration facility (biomass – bagasse and wood waste material as the primary fuel, No. 2 fuel oil as a supplementary fuel, and low sulfur coal as an alternate fuel) located at Okeelanta Corporation's sugar mill that is 6 miles south of South Bay, off U.S. Highway 27, Palm Beach County, Florida."

*Page 5, Construction Details, Specific Condition No. 1: The second sentence of this condition is revised to:*

"The facility shall be designed, constructed, and operated so that its gross net generating capacity shall not exceed 74.9 megawatt (MW), 1-hour average, ~~except that during scheduled emission compliance and equipment performance tests.~~"

*Page 7, Operational and Emission Restrictions, Specific Condition No. 11: The second sentence of this condition is revised to:*

"The facility shall not exceed 74.9 (gross net) megawatt generating capacity, 1-hour average, ~~except during emission compliance and equipment performance tests.~~"

This permit modification is issued pursuant to Chapter 403 of the Florida Statutes. Attached is original Permit No. PSD-FL-196 and a brief permitting history (Attachment A). A copy of this letter shall be filed with the referenced permit and shall become part of the permit.

Any party to this order (permit modification) has the right to seek judicial review of it under Section 120.68 of the Florida Statutes by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department of Environmental Protection in the Office of General Counsel, Mail Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-

3000, and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The notice must be filed within thirty (30) days after this order is filed with the clerk of the Department.

Sincerely,

(DRAFT)

\_\_\_\_\_  
Howard L. Rhodes, Director  
Division of Air Resources Management

**CERTIFICATE OF SERVICE**

The undersigned duly designated deputy agency clerk hereby certifies that this Notice of Final Permit was sent by certified mail (\*) and copies were mailed by U.S. Mail before the close of business on \_\_\_\_\_ to the person(s) listed:

- Mr. Ricardo Lima, OkPLP\*
- Mr. James Meriwether, OkPLP
- Mr. David Buff, Golder Associates
- Mr. James Stormer, PBCHD
- Mr. Buck Oven, Siting Coordination Office
- Mr. Ron Blackburn, SD Office
- Mr. Gregg Worley, EPA Region 4
- Mr. John Bunyak, NPS

Clerk Stamp

**FILING AND ACKNOWLEDGMENT  
FILED**, on this date, pursuant to §120.52,  
Florida Statutes, with the designated  
Department Clerk, receipt of which is hereby  
acknowledged.

\_\_\_\_\_  
(Clerk)

\_\_\_\_\_  
Date)



**Golder Associates Inc.**

6241 NW 23rd Street, Suite 500  
Gainesville, FL 32653-1500  
Telephone (352) 336-5600  
Fax (352) 336-6603

RECEIVED

MAR 26 2001



BUREAU OF AIR REGULATION

March 19, 2001

0037545-0800

Florida Department of Environmental Protection  
Bureau of Air Regulation  
2600 Blair Stone Road MS 5500  
Tallahassee, Florida 32399-2400

*file copy*

Attention: Mr. A. A. Linero, P.E., New Source Review

RE: OKEELANTA COGENERATION FACILITY  
DEP PSD PERMIT NO. PSD-FL-196  
74.9 MW (NET) OUTPUT

Dear Mr. Linero:

Okeelanta Power Limited Partnership (OkPLP) requests an amendment of the Prevention of Significant Deterioration (PSD) permit (PSD-FL-196) for the Okeelanta Cogeneration Facility. The PSD permit currently limits the Facility's electrical output to 74.9 MW (gross), as determined on a 1 hour basis. OkPLP would like to change this limitation on "gross" output to a limitation on "net" output. This is the only change in the PSD permit that OkPLP is requesting at this time.

OkPLP previously discussed this issue with the Florida Department of Environmental Protection (FDEP) and has received a letter from FDEP's Siting Coordination Office (dated March 9, 2001) confirming that this change to the PSD permit can be approved, without causing the facility to become subject to the Florida Electrical Power Plant Siting Act (PPSA). A copy of FDEP's letter is attached for your file.

Please note that the Siting Coordination Office identified two conditions that must be satisfied by OkPLP. First, OkPLP must demonstrate to the Department how it will ensure and monitor electricity production to demonstrate that no more than 74.9 MW net output, on a 15-minute average, will be sent to the grid. It is our understanding that the 15-minute limitation was erroneously included as a proposed limitation. The OkPLP facility currently complies with a 1-hour averaging time, as required by its PSD permit and Title V permit (see Permit No. PSD-FL-196, Specific Condition No. 1). OkPLP monitors the net electrical generation sent to the grid with continuous monitors. These monitors will ensure compliance with the requested limit of 74.9 MW net output (on a 1-hour average).

The letter from the Office of Siting Coordination also states that, if it is determined by the FDEP's Bureau of Air Regulation that a modification of the facility's PSD permit is required, OkPLP must formally request a permit modification by filing the appropriate application. Since OkPLP wishes to change the language in the PSD permit, we assume that the Bureau will require the submittal of an appropriate application.

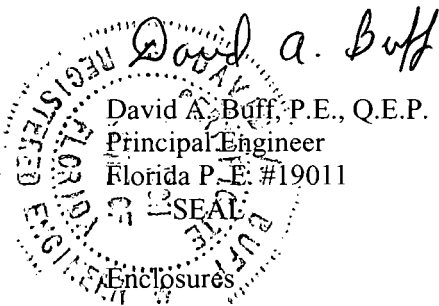
Enclosed please find pages 1 through 6 of the Application for Air Permit [DEP Form No. 62-210.900(1)] to modify permit No. PSD-FL-196. OkPLP may need to perform minor physical

changes to the facility to allow it to generate a net output of 74.9 MW. The changes, if needed, would involve a cooling system (heat exchanger) upgrade to the generator to allow operation at a greater capacity during the warmer summer months. At this time, OkPLP is not requesting any changes to the existing emission or heat input rate limits in the PSD permit, because the changes to the facility are not expected to result in an increase in either. Again, OkPLP is only requesting that the word "gross" be changed to "net" in the permit, including in the general description and in Specific Conditions Nos. 1 and 11 of Permit No. PSD-FL-196.

If you have any questions regarding this matter, please feel free to call me at (352) 336-5600.

Sincerely,

GOLDER ASSOCIATES INC.



David A. Buff, P.E., Q.E.P.  
Principal Engineer  
Florida P.E. #19011

Enclosures

cc: Gus Cepero  
David Dee  
James Meriwether  
Bill Tarr

0037545a\L031901



Job Bush  
Governor

# Department of Environmental Protection

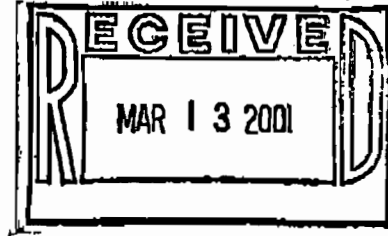
BEST AVAILABLE COPY

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

David B. Scrubs  
Secretary

March 9, 2000

David S. Dee  
Landers & Parsons  
Post Office Box 271  
Tallahassee, Florida 32302



Re: Okeelanta Generation Facility

Dear Mr. Dee

The Department has reviewed your letter dated February 14, 2001. Based on the information contained in your letter, the modifications to the facility to generate 74.9 MW, net output can be done without invoking the Florida Electrical Power Plant Siting Act (PPSA) provided that your client can demonstrate to the Department how it will ensure and monitor the production of electricity to demonstrate that no more than 74.9 MW on a 15 minute average will be sent to the grid. However the Departments decision about this issue is subject to the conditions and limitations set below.

If it is determined by the Department's bureau of Air Regulation (BAR) that a modification to the facility's Prevention of Significant Deterioration Permit (PSD) is required, Okeelanta Power Limited Partnership (OPLP) must file an appropriate application with the BAR formally requesting a permit modification. Any request to modify the PSD permit will be by the Department's Division of Air Resources Management in accordance with the Department's normal procedures for the modification of a PSD permit. An approval of that application is required before any changes could be made at the facility, however, the Department will not deny OPLP's request based on the provisions of the PPSA.

A copy of your letter is attached hereto and incorporated herein by reference. For the purposes of this response from the Department, we assume that the statements in your letter are accurate. The Department reserves the right to change its conclusions about OPLP's request if the Department determines that the material facts set forth in your letter are incorrect.

The Department's decision about the Okeelanta Cogeneration Facility is limited to the specific facts and unique circumstances that have been presented in this case. Among other things, it is significant that the instant case involves a facility where the increased generation capacity can be achieved by improving the efficiency of the cooling system without an increase in fuel input or emissions. Determinations about other facilities will be made on a case-by-case basis, in light of the relevant facts and applicable law in effect at the appropriate time.

*"Protect, Conserve and Manage Florida's Environment and Natural Resources"*

**BEST AVAILABLE COPY**

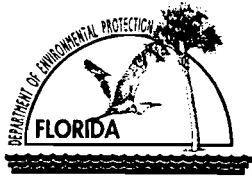
Okeelanta - 3/9/01  
Page 2

Sincerely,

*Hamilton S. Owen*

Hamilton S. Owen, P.E.  
Administrator, Siting  
Coordination Office

cc: Scott Goorland  
Clair Fancy  
Al Linero



# Department of Environmental Protection

## Division of Air Resources Management

### APPLICATION FOR AIR PERMIT - TITLE V SOURCE

See Instructions for Form No. 62-210.900(1)

#### I. APPLICATION INFORMATION

##### Identification of Facility

|   |  |
|---|--|
| 1. Facility Owner/Company Name:<br><b>Okeelanta Power L.P.</b>  |  |
| 2. Site Name:<br><b>Okeelanta Power L.P.</b>  |  |
| 3. Facility Identification Number: <b>0990332</b> [ ] Unknown   |  |
| 4. Facility Location: <b>6 miles south of South Bay on US 27</b><br>Street Address or Other Locator: <b>8001 U.S. Highway 27 South</b><br>City: <b>South Bay</b> County: <b>Palm Beach</b> Zip Code: <b>33493</b> |  |
| 5. Relocatable Facility?<br>[ ] Yes [ <b>X</b> ] No   | 6. Existing Permitted Facility?<br>[ <b>X</b> ] Yes [ ] No |

##### Application Contact

|  |  |
|--|--|
| 1. Name and Title of Application Contact:<br><b>James Meriwether, Environmental and Safety Manager</b>   |  |
| 2. Application Contact Mailing Address:<br>Organization/Firm: <b>Okeelanta Power L.P.</b><br>Street Address: <b>8001 U.S. Highway 27 South</b><br>City: <b>South Bay</b> State: <b>FL</b> Zip Code: <b>33493</b> |  |
| 3. Application Contact Telephone Numbers:<br>Telephone: <b>( 561 ) 993 - 1003</b> Fax: <b>( 561 ) 996 - 6596</b>   |  |

##### Application Processing Information (DEP Use)

|                                    |  |
|------------------------------------|--|
| 1. Date of Receipt of Application: |  |
| 2. Permit Number:                  |  |
| 3. PSD Number (if applicable):     |  |
| 4. Siting Number (if applicable):  |  |

**Purpose of Application**

**Air Operation Permit Application**

This Application for Air Permit is submitted to obtain: (Check one)

Initial Title V air operation permit for an existing facility which is classified as a Title V source.

Initial Title V air operation permit for a facility which, upon start up of one or more newly constructed or modified emissions units addressed in this application, would become classified as a Title V source.

Current construction permit number: \_\_\_\_\_

Title V air operation permit revision to address one or more newly constructed or modified emissions units addressed in this application.

Current construction permit number: \_\_\_\_\_

Operation permit number to be revised: \_\_\_\_\_

Title V air operation permit revision or administrative correction to address one or more proposed new or modified emissions units and to be processed concurrently with the air construction permit application. (Also check Air Construction Permit Application below.)

Operation permit number to be revised/corrected: \_\_\_\_\_

Title V air operation permit revision for reasons other than construction or modification of an emissions unit. Give reason for the revision; e.g., to comply with a new applicable requirement or to request approval of an "Early Reductions" proposal.

Operation permit number to be revised: \_\_\_\_\_

Reason for revision: \_\_\_\_\_

**Air Construction Permit Application**


This Application for Air Permit is submitted to obtain: (Check one)

Air construction permit to construct or modify one or more emissions units.

Air construction permit to make federally enforceable an assumed restriction on the potential emissions of one or more existing, permitted emissions units.

Air construction permit for one or more existing, but unpermitted, emissions units.

**Owner/Authorized Representative or Responsible Official**

|  |
|--|
| 1. Name and Title of Owner/Authorized Representative or Responsible Official:<br><b>Ricardo Lima, Vice President - General Manager</b>   |
| 2. Owner/Authorized Representative or Responsible Official Mailing Address:<br>Organization/Firm: <b>Okeelanta Power L.P.</b><br>Street Address: <b>8001 U.S. Highway 27 South</b><br>City: <b>South Bay</b> State: <b>FL</b> Zip Code: <b>33493</b>   |
| 3. Owner/Authorized Representative or Responsible Official Telephone Numbers:<br>Telephone: ( <b>561</b> ) <b>996 - 9072</b> Fax: ( <b>561</b> ) <b>992 - 7326</b>   |
| 4. Owner/Authorized Representative or Responsible Official Statement:<br><i>I, the undersigned, am the owner or authorized representative*(check here [ ], if so) or the responsible official (check here [ ], if so) of the Title V source addressed in this application, whichever is applicable. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof. I understand that a permit, if granted by the Department, cannot be transferred without authorization from the Department, and I will promptly notify the Department upon sale or legal transfer of any permitted emissions unit.</i><br><br>Signature <u></u> Date <u>3-21-01</u> |

\* Attach letter of authorization if not currently on file.

**Professional Engineer Certification**

|   |
|---|
| 1. Professional Engineer Name: <b>David Buff</b><br>Registration Number: <b>19011</b>   |
| 2. Professional Engineer Mailing Address:<br>Organization/Firm: <b>Golder Associates Inc.</b><br>Street Address: <b>6241 NW 23rd Street, Suite 500</b><br>City: <b>Gainesville</b> State: <b>FL</b> Zip Code: <b>32653-1500</b> |
| 3. Professional Engineer Telephone Numbers:<br>Telephone: ( <b>352</b> ) <b>336 - 5600</b> Fax: ( <b>352</b> ) <b>336 - 6603</b>  |

4. Professional Engineer Statement:

*I, the undersigned, hereby certify, except as particularly noted herein\*, that:*

*(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this Application for Air Permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and*

*(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.*

*If the purpose of this application is to obtain a Title V source air operation permit (check here [  ], if so), I further certify that each emissions unit described in this Application for Air Permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance schedule is submitted with this application.*

*If the purpose of this application is to obtain an air construction permit for one or more proposed new or modified emissions units (check here [], if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.*

*If the purpose of this application is to obtain an initial air operation permit or operation permit revision for one or more newly constructed or modified emissions units (check here [  ], if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.*

*David A. Buff*  
\_\_\_\_\_  
Signature

*3/19/01*  
\_\_\_\_\_  
Date

Attach any exception to certification statement.



**Scope of Application**

| Emissions Unit ID | Description of Emissions Unit | Permit Type | Processing Fee |
|-------------------|-------------------------------|-------------|----------------|
| 030               | Cogen Boiler A                | AC1A        |                |
| 031               | Cogen Boiler B                | AC1A        |                |
| 032               | Cogen Boiler C                | AC1A        |                |
|                   |                               |             |                |
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|                   |                               |             |                |

**Application Processing Fee**

Check one: [  ] Attached - Amount: \$: \_\_\_\_\_ [  ] Not Applicable

**Construction/Modification Information**

1. Description of Proposed Project or Alterations:

**Change in permit limit from 74.9 MW gross output to 74.9 MW net output on a 1-hour average.**

2. Projected or Actual Date of Commencement of Construction: **16 Mar 2001**

3. Projected Date of Completion of Construction: **16 Mar 2001**

**Application Comment**

## Memorandum

# Florida Department of Environmental Protection

---

TO: Clair Fancy, Bureau of Air Regulation  
THROUGH: Al Linero, New Source Review Section  
FROM: Jeff Koerner, New Source Review Section JK  
DATE: April 12, 2000  
SUBJECT: Project No. 0990332-015-AC (PSD-FL-196N)  
Okeelanta Cogeneration Plant  
Permit Modification – Revise 74.9 MW (Gross) to 74.9 MW (Net) Output

Attached is the public notice package for Okeelanta Power L.P.'s cogeneration plant located in Palm Beach County, Florida. The draft modification letter approves the request to revise the basis of the restriction on electrical generating capacity of the cogeneration plant from 74.9 MW (gross) output 74.9 MW (net) output. A brief evaluation is attached that summarizes the project.

Day #74 is June 7, 2001. I recommend your approval of the attached Intent to Issue package for this project.

AAL/jfk

Attachments

**Golder Associates Inc.**

6241 NW 23rd Street, Suite 500  
Gainesville, FL 32653-1500  
Telephone (352) 336-5600  
Fax (352) 336-6603



April 23, 2001

BUREAU OF AIR REGULATION

0037545-0800

Florida Department of Environmental Regulation  
Bureau of Air Regulation  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Attention: Mr. A. A. Linero, P.E.

SUBJECT: DEP File No. 0990332-015-AC; PSD-FL-196N  
Okeelanta Power L.P. - Permit Modification - Revise 74.9 MW (gross) to 74.9 MW (net) Output

Dear Mr. Linero:

Okeelanta Power L.P. has received the Department's intent to issue and draft permit to change the facility's maximum electrical production from 74.9 MW (gross) to 74.9 MW (net). We have reviewed the draft permit and supporting documents and have the following comment.

**Permit Conditions Revision Letter**

The modification to page 1, Placard Page, the first sentence of the second paragraph is shown in the draft as follows:


"A 74.9 megawatt (~~gross~~ net) electric (1-hour average), cogeneration facility (biomass - bagasse and wood waste material as the primary fuel, No. 2 fuel oil as a supplementary fuel, and low sulfur coal as an alternate fuel) located at Okeelanta Corporation's sugar mill that is 6 miles south of South Bay, off U.S. Highway 27, Palm Beach County, Florida."

However, the Department recently approved the request to add natural gas as a supplemental fuel. As a result, it is suggested that the wording be revised as follows:

"A 74.9 megawatt (~~gross~~ net) electric (1-hour average), cogeneration facility (biomass - bagasse and wood waste material as the primary fuel, and No. 2 fuel oil and natural gas as a supplementary fuels, and low sulfur coal as an alternate fuel) located at Okeelanta Corporation's sugar mill that is 6 miles south of South Bay, off U.S. Highway 27, Palm Beach County, Florida."

Thank you for consideration of this comment in issuing the final permit modification. If you should have any questions, please call me at (352)336-5600.

Sincerely,  
GOLDER ASSOCIATES INC.

  
David A. Buff, P.E., Q.E.P.  
Principal Engineer  
Florida P.E. #19011

SEAL

cc: James Meriwether  
Gus Cepero  
Bill Tarr  
David Dee

P:\Projects\2000\0037\0037545a Okeelanta\13\L042301.doc

**SENDER: COMPLETE THIS SECTION**

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Ricardo Lima  
 Vice President & Gen. Manager  
 Okeelanta Power L.P.  
 8001 U.S. Highway 27 South  
 South Bay, FL 33493

2. Article Number (Copy from service label)  
 7099 3400 0000 1450 2972

**COMPLETE THIS SECTION ON DELIVERY**

A. Received by (Please Print Clearly) **J. Rice** B. Date of Delivery **4-16-01**

C. Signature *[Signature]*  Agent  Addressee

D. Is delivery address different from item 1?  Yes  No  
 If YES, enter delivery address below:

3. Service Type  
 Certified Mail  Express Mail  
 Registered  Return Receipt for Merchandise  
 Insured Mail  C.O.D.

4. Restricted Delivery? (Extra Fee)  Yes

**U.S. Postal Service  
 CERTIFIED MAIL RECEIPT  
 (Domestic Mail Only; No Insurance Coverage Provided)**

7099 3400 0000 1450 2972

Article Sent To:  
**Mr. Ricardo Lima**

|   |           |
|---|-----------|
| Postage   | \$        |
| Certified Fee                                     |           |
| Return Receipt Fee<br>(Endorsement Required)      |           |
| Restricted Delivery Fee<br>(Endorsement Required) |           |
| <b>Total Postage &amp; Fees</b>                   | <b>\$</b> |

Postmark  
 Here

Name (Please Print Clearly) (to be completed by mailer)  
**Okeelanta Power L.P.**  
 Street, Apt. No. or PO Box No.  
**8001 U.S. Highway 27 South**  
 City, State, ZIP  
**South Bay, FL 33493**

**SENDER: COMPLETE THIS SECTION**

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Ricardo Lima  
 Vice President & Gen. Manager  
 Okeelanta Power L.P.  
 8001 U.S. Highway 27 South  
 South Bay, FL 33493

2. Article Number (Copy from service label)

7099 3400 0000 1450 2972

**COMPLETE THIS SECTION ON DELIVERY**

A. Received by (Please Print Clearly)

I. Rice

B. Date of Delivery

4-16-01

C. Signature

*I. Rice*

Agent

Addressee

D. Is delivery address different from item 1?  Yes

If YES, enter delivery address below:  No

3. Service Type

Certified Mail

Express Mail

Registered

Return Receipt for Merchandise

Insured Mail

C.O.D.

4. Restricted Delivery? (Extra Fee)

Yes

PS Form 3811, July 1999

Domestic Return Receipt

102595-00-M-0952

7099 3400 0000 1450 2972

**U.S. Postal Service  
 CERTIFIED MAIL RECEIPT**  
 (Domestic Mail Only; No Insurance Coverage Provided)

Article Sent To:

Mr. Ricardo Lima

|   |           |
|---|-----------|
| Postage   | \$        |
| Certified Fee                                     |           |
| Return Receipt Fee<br>(Endorsement Required)      |           |
| Restricted Delivery Fee<br>(Endorsement Required) |           |
| <b>Total Postage &amp; Fees</b>                   | <b>\$</b> |

Postmark  
Here

Name (Please Print Clearly) (to be completed by mailer)  
 Okeelanta Power L.P.

Street, Apt. No., or PO Box No.  
 8001 U.S. Highway 27 South

City, State, ZIP+4<sup>®</sup>  
 South Bay, FL 33493

PS Form 3800, July, 1999

See Reverse for Instructions

**SENDER: COMPLETE THIS SECTION**

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Ricardo Lima  
 Vice President & Gen. Mgr.  
 Okeelanta Power L.P.  
 8001 U.S. Highway 27 South  
 South Bay, FL 33493

2. Article Number (Copy from service label)  
 7000 0600 0026 4129 9464

**COMPLETE THIS SECTION ON DELIVERY**

A. Received by (Please Print Clearly) *Kathleen Yerkes* B. Date of Delivery *5/16/01*

C. Signature *X Kathleen Yerkes*  Agent  Addressee

D. Is delivery address different from item 1?  Yes  No  
 If YES, enter delivery address below:

*P.O. Box 8  
 S Bay, FL 33493*

3. Service Type  
 Certified Mail  Express Mail  
 Registered  Return Receipt for Merchandise  
 Insured Mail  C.O.D.

4. Restricted Delivery? (Extra Fee)  Yes

**U.S. Postal Service  
 CERTIFIED MAIL RECEIPT  
 (Domestic Mail Only; No Insurance Coverage Provided)**

7000 0600 0026 4129 9464

|   |    |  |
|---|----|--|
| Postage   | \$ |  |
| Certified Fee                                     |    |  |
| Return Receipt Fee<br>(Endorsement Required)      |    |  |
| Restricted Delivery Fee<br>(Endorsement Required) |    |  |
| Total Postage & Fees                              | \$ |  |

*Okeelanta  
 Cooper*  
 Postmark  
 Here

Recipient's Name (Please Print Clearly) (to be completed by mailer)

*Mr. Ricardo Lima*  
 Street, Apt. No., or P.O. Box No.  
 8001 U.S. Highway 27 South  
 City, State, ZIP+4  
 South Bay, FL 33493

**SENDER: COMPLETE THIS SECTION**

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Ricardo Lima  
 Vice President & Gen. Mgr.  
 Okeelanta Power Limited Partnership  
 8001 US Highway 27 South  
 South Bay, FL 33493

2. Article Number (Copy from service label)  
 7099 3400 0000 1449 2440

**COMPLETE THIS SECTION ON DELIVERY**

A. Received by (Please Print Clearly) **RICARDO LIMA** B. Date of Delivery **7/9/99**  
 C. Signature   Agent  
 Addressee  
 Is delivery address different from item 1?  Yes  
 If YES, enter delivery address below:  No

3. Service Type  
 Certified Mail  Express Mail  
 Registered  Return Receipt for Merchandise  
 Insured Mail  C.O.D.

4. Restricted Delivery? (Extra Fee)  Yes

PS Form 3811, July 1999

Domestic Return Receipt

102595-00-M-0952

**U.S. Postal Service**  
**CERTIFIED MAIL RECEIPT**  
 (Domestic Mail Only; No Insurance Coverage Provided)

Article Sent To:

Okeelanta Power

|   |           |
|---|-----------|
| Postage   | \$        |
| Certified Fee                                     |           |
| Return Receipt Fee<br>(Endorsement Required)      |           |
| Restricted Delivery Fee<br>(Endorsement Required) |           |
| <b>Total Postage &amp; Fees</b>                   | <b>\$</b> |

Okeelanta Power

Postmark  
 Here

Name (Please Print Clearly) (to be completed by mailer)

Mr. Ricardo Lima

Street, Apt. No. or PO Box No.  
 8001 US Highway 27 S.

City, State, ZIP+4  
 South Bay, FL 33493

PS Form 3800, July 1999

See Reverse for Instructions

7099 3400 0000 1449 2440



**SENDER: COMPLETE THIS SECTION**

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Rodney Williams  
 Plant Manager  
 New Hope Power Partnership  
 Okeelanta Cogeneration Plant  
 PO Box 9  
 South Bay, FL 33493

2. Article Number (Copy from service label)

7000 2870 0000 7028 3246

PS Form 3811, July 1999

Domestic Return Receipt

102595-99-M-1789

**COMPLETE THIS SECTION ON DELIVERY**

A. Received by (Please Print Clearly) *D. McKee* B. Date of Delivery *2-4-02*  
 C. Signature *D. McKee*  Agent  Addressee  
 D. Is delivery address different from item 1?  Yes  
 If YES, enter delivery address below:  No

3. Service Type  
 Certified Mail  Express Mail  
 Registered  Return Receipt for Merchandise  
 Insured Mail  C.O.D.

4. Restricted Delivery? (Extra Fee)  Yes

**U.S. Postal Service  
 CERTIFIED MAIL RECEIPT  
 (Domestic Mail Only; No Insurance Coverage Provided)**

**OFFICIAL USE**

7000 2870 0000 7028 3246

|   |           |
|---|-----------|
| Postage   | \$        |
| Certified Fee                                     |           |
| Return Receipt Fee<br>(Endorsement Required)      |           |
| Restricted Delivery Fee<br>(Endorsement Required) |           |
| <b>Total Postage &amp; Fees</b>                   | <b>\$</b> |

Postmark  
Here

**Sent To**  
 Rodney Williams  
 Street, Apt. No.; or PO Box No.  
 P. O. Box 9  
 City, State, ZIP+ 4  
 South Bay, FL 33493

PS Form 3800, May 2000

See Reverse for Instructions

# THE PALM BEACH POST

Published Daily and Sunday  
West Palm Beach, Palm Beach County, Florida

## PROOF OF PUBLICATION

STATE OF FLORIDA  
COUNTY OF PALM BEACH

Before the undersigned authority personally appeared **Linda Goings**, who on oath says that she is **Classified Advertising Manager, Real Estate** of The Palm Beach Post, a daily and Sunday newspaper published at West Palm Beach in Palm Beach County, Florida; that the attached copy of advertising, being **Notice** in the matter **Intent to Issue** established in said newspaper in the issues **December 29, 2001**

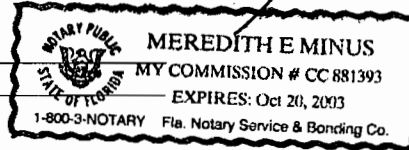
Affiant further says that the said The Post is a newspaper published at West Palm Beach, in said Palm Beach County, Florida, and that the said newspaper has heretofore been continuously published in said Palm Beach County, Florida, daily and Sunday and has been entered as second class mail matter at the post office in West Palm Beach, in said Palm Beach County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that she/he has neither paid nor promised any person, firm or corporation any discount rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.



Sworn to and subscribed before this 31st day of December, A.D. 2001



Personally known XX or Produced Identification \_\_\_\_\_  
Type of Identification Produced \_\_\_\_\_



NO. 5929705  
PUBLIC NOTICE OF INTENT  
TO ISSUE PSD AIR  
CONSTRUCTION PERMIT  
MODIFICATION  
STATE OF FLORIDA  
DEPARTMENT  
OF ENVIRONMENTAL  
PROTECTION

Project No. 0990332-014-AC  
Draft Permit PSD-FL-196M  
New Hope Power Partnership -  
Okeelanta  
Cogeneration Plant

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit modification to the applicant, New Hope Power Partnership. The applicant operates an existing cogeneration plant that is located approximately six miles south of South Bay on U.S. Highway 27 in Palm Beach County, Florida. The Okeelanta Cogeneration Plant's authorized representative is Mr. Rodney Williams, Plant Manager, and the mailing address is 8001 U.S. Highway 27 South, South Bay, FL 33493.

Based on the applicant's requests, the draft permit includes changes to the current emissions standards and monitoring requirements for carbon monoxide, sulfur dioxide, sulfuric acid mist, beryllium, fluoride, lead, and mercury. The proposed changes represent better information now available for biomass fuel, which consists of bagasse from the adjacent sugar mill and wood material from the surrounding areas. In addition, coal will be removed as an authorized fuel.

The cogeneration boilers are considered utility steam electrical generating units. As such, the applicant predicts that future actual emissions from this project will not result in actual emissions increases for beryllium, fluorides, lead or mercury that would exceed the PSD significant emission rates. The project does represent potential significant net emissions increases of the following pollutants: carbon monoxide (486 tons per year), sulfuric acid mist (27 tons per year), and sulfur dioxide (486 tons per year). However, it is noted that potential allowable emissions will: remain the same for carbon monoxide; will be reduced from 35 to 21 tons per year for sulfuric acid mist; and will be reduced from 1154 to 345 tons per year for sulfur dioxide. The reductions are due to the absence of coal firing. Therefore, in accordance with Rule 62-212.400, F.A.C., the project is subject to PSD review for carbon monoxide, sulfuric acid mist, and sulfur dioxide.

The cogeneration boilers are fired primarily with wood materials and bagasse to provide steam for the adjacent sugar mill and refinery as well as generate electricity for sale to the electrical power grid. Auxiliary fuels are restricted to natural gas and very low sulfur distillate oil. The Department made the following determinations of the Best Available Control Technology (BACT) for this project. For emissions of sulfuric acid mist and sulfur dioxide, BACT was determined to be the firing of these very low sulfur fuels. For emissions of carbon monoxide, BACT was determined to be efficient combustion combined with good operating practices. The BACT standards for beryllium emissions were removed because beryllium is no longer subject to PSD review and because the primary source of beryllium was coal, which is no longer an authorized fuel. BACT for fluorides was also revised because the primary

source of fluorides was coal, which is no longer an authorized fuel. The draft permit also includes several miscellaneous changes to clarify the testing and monitoring requirements and updates the permit for previous modifications.

The Department reviewed the applicant's air quality analysis performed for carbon monoxide and sulfur dioxide. Emissions from the facility will not significantly contribute to or cause a violation of any state or federal ambient air quality standards. The maximum predicted PSD Class II sulfur dioxide (SO<sub>2</sub>) increment consumed by all sources in the area, including this project, will be as follows:

| Pollutant       | Averaging Period | Maximum Predicted Impacts (ug/m <sup>3</sup> ) | PSD Class II Increment (ug/m <sup>3</sup> ) | Percent of Increment |
|-----------------|------------------|--|---|----------------------|
| SO <sub>2</sub> | 3-hour           | 54   | 512   | 11%                  |
|                 | 24-hour          | 12   | 91  | 13%                  |
|                 | Annual           | 0  | 20  | 0%                   |

The Everglades National Park is the nearest PSD Class I area to the project. The maximum 24-hour SO<sub>2</sub> increment in the Everglades National Park consumed by all sources, including this project, is predicted to be 3.5 ug/m<sup>3</sup>, which represents 70% of the allowable PSD Class I increment of 5 ug/m<sup>3</sup>.

The Department will issue the Final Permit with the proposed conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions. The Department will accept written comments and requests for public meetings concerning the proposed permit issuance action for a period of thirty (30) days from the date of publication of this Public Notice of Intent to Issue Air Construction Permit. Written comments and requests for public meetings should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57, F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Mediation is not available in this proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen (14) days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under Section 120.60(3), F.S., must be filed within fourteen (14) days of publication of the public notice or within fourteen (14) days of receipt of this notice of intent, whichever occurs first. Under Section 120.60(3), F.S., however, any person who asked the Department for notice of agency action may file a

petition within fourteen (14) days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) the name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

A complete project file is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Dept. of Environmental Protection  
Bureau of Air Regulation  
New Source Review Section  
Suite 4, 111 S. Magnolia Drive  
Tallahassee, Florida 32301  
Telephone: 850/488-0114  
Dept. of Environmental Protection  
South District Office  
Air Resources Section  
2295 Victoria Avenue,  
Suite 364  
Fort Myers, Florida  
33901-3381  
Telephone: 941/332-6975  
Palm Beach County  
Health Dept.  
Environmental Health and Engineering/Air Pollution Control Section  
901 Evernia Street  
West Palm Beach,  
Florida 33401  
Telephone: 561/355-3136

The complete project file includes the application, Technical Evaluation and Preliminary Determination, Draft Permit, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Department's project engineer for additional information at the address and phone numbers listed above.

PUB: The Palm Beach Post  
December 29, 2001

**SENDER: COMPLETE THIS SECTION**

- Complete items 1, 2, and 3. Also, complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Rodney Williams  
 Plant Manager  
 Okeelanta cogeneration Plant  
~~8001 U. S. Highway 27 South~~  
 South Bay, FL 33493

*PO Box 9*

2. Article Number (Copy from service label)

7000 2870 0000 7028 3031

PS Form 3811, July 1999

Domestic Return Receipt

102595-99-M-1789

**COMPLETE THIS SECTION ON DELIVERY**

A. Received by (Please Print/Clearly) *D. Williams* B. Date of Delivery *12-26-01*

C. Signature *D. Williams*  Agent  Addressee

D. Is delivery address different from item 1?  Yes  No  
 If YES, enter delivery address below:

3. Service Type

- Certified Mail  Express Mail
- Registered  Return Receipt for Merchandise
- Insured Mail  C.O.D.

4. Restricted Delivery? (Extra Fee)  Yes

**U.S. Postal Service  
 CERTIFIED MAIL RECEIPT  
 (Domestic Mail Only; No Insurance Coverage Provided)**

**OFFICIAL USE**

7000 2870 0000 7028 3031

|   |           |
|---|-----------|
| Postage   | \$        |
| Certified Fee                                     |           |
| Return Receipt Fee<br>(Endorsement Required)      |           |
| Restricted Delivery Fee<br>(Endorsement Required) |           |
| <b>Total Postage &amp; Fees</b>                   | <b>\$</b> |

Postmark  
Here

Sent To

Rodney Williams

Street, Apt. No.; or PO Box No.

8001 US Hwy. 27 S.

City, State, ZIP+4

S. Bay, FL 33493

PS Form 3800, May 2000

See Reverse for Instructions

**SENDER: COMPLETE THIS SECTION**

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Ricardo Lima  
 Vice President & Gen. Mgr.  
 Okeelanta Power Limited  
 Partnership  
 8001 U.S. Highway 27 South  
 South Bay, FL 33493

2. Article Number (Copy from service label)  
 7000 0600 0026 4129 8306

**COMPLETE THIS SECTION ON DELIVERY**

A. Received by (Please Print Clearly) B. Date of Delivery

Amanda KIAMAN 7/17/01

C. Signature

X Amanda Kiamo

Agent  
 Addressee

D. Is delivery address different from item 1?  Yes  
 If YES, enter delivery address below:  No

PO Box 8  
 SBAY, FL 33493-0008

3. Service Type

Certified Mail  Express Mail  
 Registered  Return Receipt for Merchandise  
 Insured Mail  C.O.D.

4. Restricted Delivery? (Extra Fee)  Yes

**U.S. Postal Service**  
**CERTIFIED MAIL RECEIPT**  
 (Domestic Mail Only; No Insurance Coverage Provided)

7000 0600 0026 4129 8306

[Redacted]

|   |           |
|---|-----------|
| Postage   | \$        |
| Certified Fee                                     |           |
| Return Receipt Fee<br>(Endorsement Required)      |           |
| Restricted Delivery Fee<br>(Endorsement Required) |           |
| <b>Total Postage &amp; Fees</b>                   | <b>\$</b> |

Postmark  
 Here

Recipient's Name (Please Print Clearly) (to be completed by mailer)  
 Mr. Ricardo Lima  
 Street, Apt. No., or PO Box No.  
 8001 U.S. Highway 27 South  
 City, State, ZIP+4  
 South Bay, FL 33493

**SENDER: COMPLETE THIS SECTION** **COMPLETE THIS SECTION ON DELIVERY**

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:  
 Mr. Ricardo Lima  
 Vice President & Gen. Mgr.  
 Okeelanta Power Limited Partner  
 ship  
 8001 U.S. Highway 27 South  
 South Bay, FL 33493

Received by (Please Print Clearly) **B. McPhee** B. Date of Delivery **4/30/04**

C. Signature **X** *[Signature]*  Agent  
 Addressee

D. Is delivery address different from item 1?  Yes  
 If YES, enter delivery address below:  No

**P.O. Box 86**  
**S. Bay 71 33493**

3. Service Type  
 Certified Mail  Express Mail  
 Registered  Return Receipt for Merchandise  
 Insured Mail  C.O.D.

4. Restricted Delivery? (Extra Fee)  Yes

2. Article Number (Copy from service label)  
 7099 3400 0000 1450 2613

**U.S. Postal Service**  
**CERTIFIED MAIL RECEIPT**  
*(Domestic Mail Only; No Insurance Coverage Provided)*

Article Sent To:  
Ricardo Lima

|   |           |   |
|---|-----------|---|
| Postage   | \$        | Okeelanta<br>Power LP<br>Postmark<br>Here |
| Certified Fee                                     |           |   |
| Return Receipt Fee<br>(Endorsement Required)      |           |   |
| Restricted Delivery Fee<br>(Endorsement Required) |           |   |
| <b>Total Postage &amp; Fees</b>                   | <b>\$</b> |   |

Name (Please Print Clearly) (to be completed by mailer)  
Ricardo Lima

Street, Apt. No., or PO Box No.  
8001 US Highway 27 South

City, State, ZIP+4  
South Bay, FL 33493

PS Form 3800, July 1999 See Reverse for Instructions

7099 3400 0000 1450 2613

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

NOTICE OF FINAL PERMIT

In the Matter of an  
Application for Permit by:

New Hope Power Partnership  
Okeelanta Cogeneration Plant  
8001 U.S. Highway 27 South (P.O. Box 9)  
South Bay, FL 33493

Authorized Representative:

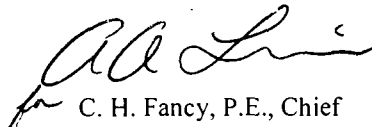
Mr. Rodney Williams, Plant Manager

Air Permit No. PSD-FL-196M  
Project No. 0990332-014-AC  
Okeelanta Cogeneration Plant  
SIC No. 4911  
Palm Beach County

Enclosed is final air permit No. PSD-FL-196M for the cogeneration plant located off U.S. Highway 27 and approximately six miles south of South Bay in Palm Beach County, Florida. This modification: revises emissions limiting and monitoring provisions for emissions of carbon monoxide, fluorides, lead, mercury, sulfur dioxide, and sulfuric acid mist; removes the authority to fire low sulfur coal as a backup fuel; and removes the requirement to conduct stack testing for chromium, copper and arsenic. In addition, this modification updates the permit format and incorporates all previous permit modifications into a single document. As noted in the Final Determination (attached), only minor changes were made to correct typographical errors. This permit is issued pursuant to Chapter 403, Florida Statutes.

Any party to this order has the right to seek judicial review of it under Section 120.68 of the Florida Statutes, by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department of Environmental Protection in the Office of General Counsel, Mail Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000, and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The notice must be filed within thirty (30) days after this order is filed with the clerk of the Department.

Executed in Tallahassee, Florida.

  
C. H. Fancy, P.E., Chief  
Bureau of Air Regulation

CERTIFICATE OF SERVICE

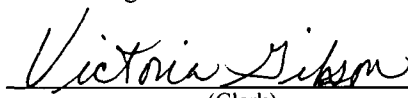
The undersigned duly designated deputy agency clerk hereby certifies that this Notice of Final Permit (including the Final Permit) was sent by certified mail (\*) and copies were mailed by U.S. Mail before the close of business on 2/1/02 to the persons listed below.

Mr. Rodney Williams, Plant Manager\*  
Mr. James Meriwether, Okeelanta  
Mr. Matthew Capone, Okeelanta  
Mr. David Buff, Golder Associates

Mr. James Stormer, PBCHD  
Mr. Ron Blackburn, SD  
Mr. Gregg Worley, EPA Region 4  
Mr. John Bunyak, NPS

Clerk Stamp

**FILING AND ACKNOWLEDGMENT FILED**, on this date, pursuant to §120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

 February 1, 2002  
(Clerk) (Date)

## FINAL DETERMINATION

### PERMITTEE

New Hope Power Partnership  
Okeelanta Cogeneration Plant  
8001 U.S. Highway 27 South (P.O. Box 9)  
South Bay, FL 33493

### PERMITTING AUTHORITY

Florida Department of Environmental Protection  
Division of Air Resources Management  
Bureau of Air Regulation  
New Source Review Section  
2600 Blair Stone Road, MS #5505  
Tallahassee, Florida, 32399-2400

### PROJECT

Project No. 0990332-014-AC  
Air Permit No. PSD-FL-196M

The original PSD permit authorized the construction of a biomass and fossil fuel-fired 74.9 MW cogeneration plant adjacent to Okeelanta Corporation's sugar mill. The original PSD permit expired on July 1, 1996. The permittee obtained several previous permit modifications that extended some construction-related activities as well as revising specific conditions of the permit. This modification revises: emissions limiting and monitoring provisions for emissions of carbon monoxide, fluorides, lead, mercury, sulfur dioxide, and sulfuric acid mist; removes the authority to fire low sulfur coal as a backup fuel; and removes the requirement to conduct stack testing for chromium, copper and arsenic. In addition, this modification updates the permit format and incorporates all previous permit modifications into a single document. Prior to "New Hope Power Partnership", the cogeneration plant was owned and operated by the "Okeelanta Power Limited Partnership".

The cogeneration plant is located off U.S. Highway 27 and approximately six miles south of South Bay in Palm Beach County, Florida. The UTM coordinates are Zone 17, 524.90 km East, and 2940.10 km North. The map coordinates are latitude 26° 35' 00" N and longitude 80° 45' 00" W.

### NOTICE AND PUBLICATION

The Department distributed an "Intent to Issue Permit" package on December 20, 2001. The applicant published the "Public Notice of Intent to Issue" in The Palm Beach Post on December 29, 2001. The Department received proof of publication on January 7, 2002. No requests for administrative hearings were filed.

### COMMENTS/CHANGES

No comments on the Draft Permit were received from the public, the Department's South District Office, the EPA Region 4 office, the National Park Service or the Palm Beach County Health Department. Minor comments were received from the applicant. The following provides the Department's response to each comment.

#### Technical Evaluation and Preliminary Determination

**Page 6, Table 4A:** The applicant noted errors in the table for SO<sub>2</sub> and SAM emissions. **Response:** Future actual emissions were corrected to 345.0 TPY for SO<sub>2</sub> and 20.7 TPY for SAM. The net emissions for each pollutant were corrected accordingly. The PSD significant emission rate for SAM was also corrected to 7 TPY. These changes do not affect any conclusions regarding PSD applicability.



## FINAL DETERMINATION

**Page 10, 7. Sulfur Dioxide (SO<sub>2</sub>) Emissions, 2<sup>nd</sup> Paragraph:** The applicant comments that the text should be changed as follows, "... potential SO<sub>2</sub> emissions are being reduced from 1154 to ~~402.5~~ 345.0 tons per year". **Response:** This section of the report discusses the *applicant's request* for a long-term SO<sub>2</sub> emissions limit of 0.07 lb/MMBtu, which would result in an annual emission rate of 402.5 TPY. The draft permit established a limit of 0.06 lb/MMBtu, which results in an annual emission rate of 345.0 TPY. No change was necessary.

**Page 14, 11. Lead Emissions:** The applicant notes that the Department did not address the request for an emission limit "bubbled" over the three boilers. **Response:** The following statement was added to the end of this section, "Based on the available information, the Department believes each boiler is capable of complying with the specified emission standard on an individual basis."

**Page 15, 12. Mercury Emissions:** The applicant notes that the Department did not address the request for an emission limit "bubbled" over the three boilers. **Response:** The following statement was added to the end of this section, "Based on the available information, the Department believes each boiler is capable of complying with the specified emission standard on an individual basis."

### **Draft Permit**

**Page 5, Construction Details, Condition 5:** The applicant notes that installation of the authorized natural gas burner system is complete on two of the three boilers. Each system consists of four burners with a total maximum heat input of 400 MMBtu per hour when firing natural gas alone. The third boiler will have the same configuration. **Response:** The Department updated the permit to reflect the installed equipment. The emissions unit description and Condition Nos. 5 and 10 were revised to reflect the maximum heat input of the final equipment selected.

**Page 7, Condition 11a:** The applicant comments that Methods 3050/6010 are EPA Method SW-846 methods and not ASTM Methods. **Response:** The condition was revised accordingly.

**Page 11, Condition 19d:** The applicant requests revising the last sentence to require the reporting of annual emissions for all such events per year. **Response:** To clarify that the requirement is to report annual emissions for each *type* of incident, the condition was revised to:

*"Reporting:* In conjunction with the annual operating report, the permittee shall identify the number of startups, the number of shutdowns, and the number of malfunctions that occurred during the year for each boiler. For each boiler's CO and NO<sub>x</sub> monitors, the report shall identify the annual hours of emission data excluded from the compliance determination due to each type of incident (startups; shutdowns; and documented malfunctions)."

**Appendix D, Page D-1, Final BACT Determination (SO<sub>2</sub>):** The applicant requests correction of 24-hour SO<sub>2</sub> average from "block" to "rolling", consistent with the permit. **Response:** The error was corrected.

**Appendix E, Page E-1, Continuous Monitor Requirements, 1b:** The applicant states that the biomass feed rates are determined directly by weigh scales (not the fuel heating values) and requests revision similar to the Title V permit text. **Response:** The condition was revised to be consistent with the similar condition (I.12.b.) in the Title V permit.

### **CONCLUSION**

Other changes were made to correct typographical errors. The final action of the Department is to issue the permit with the minor changes described above.



# Department of Environmental Protection

Jeb Bush  
Governor

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

David B. Struhs  
Secretary

## PERMITTEE

New Hope Power Partnership  
Okeelanta Cogeneration Plant  
8001 U.S. Highway 27 South (P.O. Box 9)  
South Bay, FL 33493

### Authorized Representative:

Mr. Rodney Williams, Plant Manager

Air Permit No. PSD-FL-196M  
Project No. 0990332-014-AC  
Okeelanta Cogeneration Plant  
SIC No. 4911  
Palm Beach County

## PROJECT AND LOCATION

The original PSD permit authorized the construction of a biomass and fossil fuel-fired 74.9 MW cogeneration plant adjacent to Okeelanta Corporation's sugar mill. The original PSD permit expired on July 1, 1996. The permittee obtained several previous permit modifications that extended some construction-related activities as well as revising specific conditions of the permit. This modification revises: emissions limiting and monitoring provisions for emissions of carbon monoxide, fluorides, lead, mercury, sulfur dioxide, and sulfuric acid mist; removes the authority to fire low sulfur coal as a backup fuel; and removes the requirement to conduct stack testing for chromium, copper and arsenic. In addition, this modification updates the permit format and incorporates all previous permit modifications into a single document.

The cogeneration plant is located off U.S. Highway 27 and approximately six miles south of South Bay in Palm Beach County, Florida. The UTM coordinates are Zone 17, 524.90 km East, and 2940.10 km North. The map coordinates are latitude 26° 35' 00" N and longitude 80° 45' 00" W.

## STATEMENT OF BASIS

This PSD air pollution construction permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.), and Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.) and Title 40, Part 52, Section 21 of the Code of Federal Regulations. Specifically, this permit is issued pursuant to the requirements for the Prevention of Significant Deterioration (PSD) of Air Quality, Rule 62-212.400, F.A.C. The permittee is authorized to operate the installed equipment in accordance with the conditions of this permit, the conditions of the Title V operation permit, and as described in the application, approved drawings, plans, and other documents on file with the Department.

## CONTENTS

- Section I. General Information
- Section II. Administrative Requirements
- Section III. Emissions Units Specific Conditions
- Section IV. Appendices

Howard L. Rhodes, Director  
Division of Air Resources Management

1/31/02

Effective Date

"More Protection, Less Process"

## SECTION I. GENERAL INFORMATION

### FACILITY DESCRIPTION

The facility consists of two adjacent plants. Okeelanta Corporation operates a sugar mill (SIC No. 2061) and sugar refinery (SIC No. 2062) including packaging and transshipment activities. New Hope Power Partnership operates a 74.9 net MW cogeneration plant that provides process steam for the sugar mill/refinery and generates electricity for sale to the power grid (SIC 4911). This permit addresses the cogeneration plant, which consists of the following emissions units.

| ID  | Emission Unit Description                  |
|-----|--|
| 001 | Cogeneration Boiler A (715 MMBtu per hour) |
| 002 | Cogeneration Boiler B (715 MMBtu per hour) |
| 003 | Cogeneration Boiler C (715 MMBtu per hour) |
| 004 | Material handling and storage              |

### REGULATORY CLASSIFICATION

Title III: Based on the Title V operation permit, the facility may have emissions of hazardous air pollutants (HAPs) at levels greater than the major source thresholds.

Title IV: Based on the Title V operation permit, the facility does not operate any units subject to the acid rain provisions of the Clean Air Act.

Title V: Because potential emissions of at least one regulated pollutant exceed 100 tons per year, the facility is a Title V major source of air pollution in accordance with Chapter 213, F.A.C. Regulated pollutants include pollutants such as carbon monoxide (CO), nitrogen oxides (NOx), particulate matter (PM/PM<sub>10</sub>), sulfur dioxide (SO<sub>2</sub>), and volatile organic compounds (VOC).

PSD: The facility is located in an area currently designated as "attainment" or "unclassifiable" for each pollutant subject to a National Ambient Air Quality Standard. The cogeneration plant is considered a "fossil fuel fired steam electric plant of more than 250 million BTU per hour of heat input", which is one of the 28 PSD source categories with the lower PSD applicability threshold of 100 tons per year. Potential emissions of at least one regulated pollutant exceed 100 tons per year. Therefore, the facility is classified as a major source of air pollution with respect to Rule 62-212.400, F.A.C., the Prevention of Significant Deterioration (PSD) of Air Quality.

PPSC: The facility is not subject to Chapter 62-17, F.A.C. for Power Plant Site Certification because it produces less than 75 MW of steam-generated electrical power.

NSPS: The facility operates emissions units subject to the New Source Performance Standards of 40 CFR 60, including Subparts Da and Db (boilers) and Subpart Kb (fuel storage tanks).

### PERMITTING AUTHORITY

All documents related to applications for permits to construct, operate or modify an emissions unit shall be submitted to the Bureau of Air Regulation of the Florida Department of Environmental Protection (DEP) at 2600 Blair Stone Road (MS #5505), Tallahassee, Florida 32399-2400.

### COMPLIANCE AUTHORITY

All documents related to compliance activities such as reports, tests, and notifications shall be submitted to the Air Pollution Control Section of the Palm Beach County Health Department at P.O. Box 29, West Palm Beach, Florida 33402-0029. Copies of all such documents shall be submitted to the Air Resources Section at the South District Office of the Florida Department of Environmental Protection (DEP) at 2295 Victoria Avenue, Suite 364 in Fort Myers, Florida 33902-2549.

## SECTION I. GENERAL INFORMATION

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### APPENDICES

The following Appendices are attached in Section IV as part of this permit.

Appendix A. Citation Format

Appendix B. General Conditions

Appendix C. Standard Requirements

Appendix D. Final BACT Determinations

Appendix E. Continuous Monitor Requirements

### RELEVANT DOCUMENTS

The documents listed below are not a part of this permit; however, they are specifically related to this permitting action and are on file with the Department.

- Initial air construction Permit No. PSD-FL-196 issued September 27, 1993 and all subsequent modifications.
- Permit application received on January 2, 2001 and all related correspondence to make complete.
- Initial draft permit package issued on (Draft).

### CITATION FORMAT

Appendix A of this permit describes the format used to cite applicable rules and regulations as well as previous permitting actions.

## SECTION II. ADMINISTRATIVE REQUIREMENTS

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1. General Conditions: The permittee is subject to, and shall operate under, the attached General Conditions listed in Appendix B of this permit. General Conditions are binding and enforceable pursuant to Chapter 403 of the Florida Statutes. [Rule 62-4.160, F.A.C.]
2. Applicable Regulations, Forms and Application Procedures: Unless otherwise indicated in this permit, the construction and operation of the subject emissions unit shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of: Chapter 403 of the Florida Statutes (F.S.); Chapters 62-4, 62-204, 62-210, 62-212, 62-213, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.); and the Title 40, Parts 51, 52, and 60 of the Code of Federal Regulations (CFR), adopted by reference in Rule 62-204.800, F.A.C. The terms used in this permit have specific meanings as defined in the applicable chapters of the Florida Administrative Code. The permittee shall use the applicable forms listed in Rule 62-210.900, F.A.C. and follow the application procedures in Chapter 62-4, F.A.C. Issuance of this permit does not relieve the permittee from compliance with any applicable federal, state, or local permitting or regulations. [Rules 62-204.800, 62-210.300 and 62-210.900, F.A.C.]
3. Permit Expiration: The original expiration date for the construction of this plant was July 1, 1996. However, construction of the cogeneration plant is complete and commercial operation has commenced. This revised permit does not authorize any additional construction.
4. Effective Date: The effective date of the modified PSD permit is specified on the placard page (page 1).
5. Relaxations of Restrictions on Pollutant Emitting Capacity: If a previously permitted facility or modification becomes a facility or modification which would be subject to the preconstruction review requirements of this rule if it were a proposed new facility or modification solely by virtue of a relaxation in any federally enforceable limitation on the capacity of the facility or modification to emit a pollutant (such as a restriction on hours of operation), which limitation was established after August 7, 1980, then at the time of such relaxation the preconstruction review requirements of this rule shall apply to the facility or modification as though construction had not yet commenced on it. [Rule 62-212.400(2)(g), F.A.C.]
6. New or Additional Conditions: For good cause shown and after notice and an administrative hearing, if requested, the Department may require the permittee to conform to new or additional conditions. The Department shall allow the permittee a reasonable time to conform to the new or additional conditions, and on application of the permittee, the Department may grant additional time. [Rule 62-4.080, F.A.C.]
7. Modifications: No emissions unit or facility subject to this permit shall be constructed or modified without obtaining an air construction permit from the Department. Such permit shall be obtained prior to beginning construction or modification. [Rules 62-210.300(1) and 62-212.300(1)(a), F.A.C.]
8. Title V Permit Revision: Within 180 days of the effective date of this modified PSD permit, the permittee shall submit an application for a revised Title V permit to incorporate the changes and operate the cogeneration plant. To apply for a revised Title V operation permit, the applicant shall submit the appropriate application form, compliance test results, and such additional information as the Department may by law require. The application shall include a Compliance Assurance Monitoring Plan. The application shall be submitted to the Department's Bureau of Air Regulation with copies to each Compliance Authority. [Rules 62-4.030, 62-4.050, 62-4.220, and Chapter 62-213, F.A.C.]

### SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS

This section of the permit addresses the following emissions units.

#### **Emissions Units 001, 002, and 003: Cogeneration Boilers A, B, and C**

*Description:* Each unit is a biomass-fired spreader stoker steam boiler manufactured by Zurn and designed to produce approximately 455,400 pounds per hour of steam at 1500 psig and 975° F.

*Fuels and Capacity:* The primary fuel is biomass (715 MM Btu per hour), which includes bagasse from the adjacent sugar mill and clean wood material delivered to the plant by area subcontractors. Auxiliary fuels include natural gas (400 MMBtu per hour) and very low sulfur distillate oil (490 MMBtu per hour).

*Controls:* Pollution control equipment includes low-NOx burners for gas firing, a selective non-catalytic reduction system to reduce nitrogen oxides emissions, mechanical dust collectors and an electrostatic precipitator to reduce particulate matter emissions, and an activated carbon injection system to reduce potential mercury emissions. Good operating practices and the efficient combustion of clean, low-sulfur fuels minimizes emissions of carbon monoxide, sulfuric acid mist, sulfur dioxide, and volatile organic compounds.

*Stack Parameters:* Exhaust gases exit a 10 foot diameter stack that is at least 199 feet tall and with a volumetric flow rate of approximately 246,000 acfm at 295° F.

**Emissions Unit 004: Material handling and storage** including unloading operations, stockpiles, transfer operations, conveyors, screens, crushers, hoppers, silos, and storage tanks.

#### **CONSTRUCTION DETAILS**

1. **Generating Capacity:** Construction of the proposed cogeneration plant shall reasonably conform to the plans described in the application. The plant shall be designed, constructed, and operated such that the generating capacity does not exceed 74.9 net megawatt (MW) based on a 1-hour average. The owner or operator shall not modify the cogeneration plant in any way that would cause the plant to exceed the limit on maximum net generating capacity. The hourly average net generation rate shall be recorded and retained for at least 5 years.
2. **Boiler Design:** The cogeneration boilers shall consist of spreader stoker units designed to fire biomass as the primary fuel with pipeline-quality natural gas and distillate oil as auxiliary fuels. Natural gas and distillate oil are fired at startup, to supplement biomass fuel, and for periods when the biomass fuel supply is interrupted. No other fuels are authorized. {Permitting Note: Each boiler was originally designed to fire low sulfur coal as an emergency backup fuel, but no transfer, crushing, or storage systems were ever installed. The permittee shall apply for a permit modification before firing any other fuel.}
3. **Stack:** Each boiler shall have an individual stack that is at least 199 feet tall. The permanent stack sampling facilities for each stack must comply with Rule 62-297.345, F.A.C.
4. **Process Monitors:** Each boiler shall be equipped with instruments to measure the fuel feed rate, heat input, steam production, steam pressure, and steam temperature. Appendix E identifies minimum requirements for monitoring equipment.
5. **Control Equipment:** Each boiler shall be equipped with:
  - Low-NOx natural gas burners rated for no more than 0.15 pounds of NOx per MMBtu of heat input. Four burners are installed with one in each corner the boiler. The maximum heat input rate from all four burners is 400 MMBtu per hour.
  - Mechanical dust collectors consisting of four, large diameter, multi-tube modules with airfoil vanes or equivalent equipment. The mechanical dust collectors shall be installed and maintained as pre-control devices prior to each electrostatic precipitator and designed for a removal efficiency of at least 85% of the particulate matter greater than 10 microns in size (assuming a specific gravity of 2.00).
  - An electrostatic precipitator (ESP) designed for at least 98 percent removal of particulate matter.

### SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS

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- A selective non-catalytic reduction (SNCR) system designed for at least 40 percent removal of NO<sub>x</sub>.
  - A carbon injection system (or equivalent) for potential control of mercury emissions.
6. Continuous Monitors: For each cogeneration boiler, the permittee shall install, calibrate, maintain, and operate continuous emissions monitors (CEMS) and continuous opacity monitors (COMS) to measure and record emissions of carbon monoxide (CO), nitrogen oxides (NO<sub>x</sub>), opacity, oxygen (O<sub>2</sub>), and sulfur dioxide (SO<sub>2</sub>) in a manner sufficient to demonstrate compliance with the standards of this permit. The opacity monitor shall be placed in the ductwork between the electrostatic precipitator and the stack or in the stack. Appendix E identifies minimum requirements for monitoring systems.
7. Good Combustion Practices: An oxygen meter shall be installed for each unit to continuously monitor a representative sample of the flue gas. The oxygen monitor shall be used with automatic feedback or manual controls to continuously optimize air/fuel ratio parameters. Depending on the fuel quality and existing combustion conditions, the operator shall provide sufficient excess air to ensure good combustion within the boiler. The application to revise the Title V operation permit shall identify "good combustion practices" for the cogeneration boilers to minimize pollutant emissions during startup, operation, and shutdown. The document "Use of Flue Gas Oxygen Meter as BACT for Combustion Controls" shall be used as a guide. Good combustion controls shall also include the following:
- Maintain improved combustion controls to provide efficient tuning of air/fuel control instrumentation.
  - Maintain rotary pocket-style wood feeders with efficient air seal to minimize intrusion of ambient air.
  - Maintain effective water level controls in bottom ash system to prevent intrusion of ambient air.
  - Mix biomass fuel to provide a consistent fuel blend.
  - Maintain the flue gas oxygen content to provide efficient combustion for the existing conditions.
  - When necessary to enhance poor combustion, reduce the biomass feed rate below the maximum rate.
  - When necessary to enhance poor combustion, co-fire natural gas or distillate oil.
8. O&M Plans: The application to revise the Title V operation permit shall include an operation and maintenance plan consisting of at least the following items.
- a. For the cogeneration boilers, electrostatic precipitators (ESP), selective non-catalytic reduction (SNCR) systems, activated carbon injection (ACI) mercury control systems, and silo fabric filters, identify: the capacities, design efficiencies, pollutant emission rates, general operational description of equipment, key design and operating parameters, expected operating range of each key parameter, monitoring of key parameters, frequency of monitoring (instantaneous, continual, or continuous), and actions taken to return key parameters to within the expected operating ranges. The plan shall also specify good operating practices to promote efficient boiler combustion, startup and shutdown procedures for the boilers and control systems to minimize emissions, and precautions to prevent fugitive particulate matter emissions. {Permitting Note: Operation outside of the specified operating range for any monitored parameter would not be a violation by itself. However, continued operation outside of a specified operating range without corrective action may be considered circumvention of the air pollution control equipment or methods.}
  - b. For the selective non-catalytic reduction (SNCR) systems identify an alternate NO<sub>x</sub> emissions control plan based on previous monitoring data that shall be implemented in case the NO<sub>x</sub> monitoring system is down. The plan shall identify the minimum urea injection rate that has demonstrated continuous compliance with the NO<sub>x</sub> emissions standard at various load conditions.
9. Materials Handling Controls: For the fly ash handling and mercury control system reactant storage systems:
- a. The particulate matter filter control system for the storage silos shall be designed to achieve an outlet dust loading of no greater than 0.01 grains per actual cubic feet of exhaust.
  - b. The fly ash handling system (including transfer points and storage bin) shall be enclosed. The ash shall

### SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS

be wetted in the ash conditioner to minimize fugitive dust prior to discharging to the disposal bin.

#### OPERATIONAL RESTRICTIONS

10. Permitted Capacity: The cogeneration boilers shall be constructed and operated in accordance with the capabilities and specifications described in the application. The maximum heat input rate to each cogeneration boiler shall not exceed 715 MMBtu/hr when burning 100 percent biomass, 400 MMBtu/hr when burning 100 percent natural gas, and 490 MMBtu/hr when burning 100 percent very low sulfur distillate oil. The maximum heat input to the entire plant (total for all three boilers combined) shall not exceed  $11.5 \times 10^{+6}$  MMBtu during any consecutive 12-month period. The steam production of each boiler shall not exceed an average of 455,418 pounds per hour at 1,500 psig and 975°F.
11. Primary Fuel: The primary fuel for the plant shall be biomass, which shall consist of bagasse and authorized wood material. Bagasse is the fibrous vegetative residue remaining after the sugarcane milling process. Authorized wood material is clean construction and demolition wood debris, yard trash, land clearing debris, and other clean cellulose and vegetative matter. Each cogeneration boiler shall combust no more than 30% by weight yard waste (yard trash) on a calendar quarter basis that is defined as a municipal solid waste (MSW) in 40 CFR 60.51a. The biomass fuel used at the cogeneration plant shall not contain hazardous substances, hazardous wastes, biomedical wastes, or garbage. The fuel used at the cogeneration plant 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 material or similar vegetative matter that has been delivered to the plant 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 material and vegetative matter.

The permittee shall design and implement a management and testing program for the wood material and other materials delivered to the plant 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. 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. Based on the analysis of a composite sample, wood material containing more than 70.7 ppm arsenic or 83.3 ppm chromium or 62.8 ppm copper shall not be burned. Fuel scheduled for burning shall be inspected daily. At a minimum, the fuel management program shall include the following sampling and analyses:

- a. At least twice each month, the permittee shall have separate analyses conducted on an as-fired wood sample and an as-fired bagasse sample for the following: heating value (modified ASTM D3286, Btu/lb, dry), carbon content (modified ASTM D5373, percent by weight, dry), sulfur content (modified ASTM D4239 Method C, percent by weight, dry), and moisture content (modified ASTM D3173, percent by weight). In addition the wood sample shall be analyzed for copper, chromium, and arsenic in accordance with Methods 3050/6010 (EPA Method SW-846) and reported in ppm by weight, dry. Samples shall be taken at least two weeks apart.
- b. At least once each month, the permittee shall have an analysis conducted on a composite sample of fly ash and bottom ash for arsenic, copper, and chromium in accordance with the procedures described in EPA Method SW-846, *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (40 CFR 261, Appendix III). The analytical results from ash testing shall be used in conjunction with those from the as-fired wood samples to evaluate the effectiveness of the fuel management program in removing chemically treated wood from the biomass fuel. The permittee shall dispose of all ash generated on site in accordance with the applicable state and federal regulations.
- c. Analytical results of the as-fired biomass fuels and ash sampling shall be summarized and provided in the quarterly report to the Compliance Authority.

The ash and fuel management program shall become part of the Title V operation permit.



### SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS

12. Auxiliary Fuel: The cogeneration boilers shall fire only very low sulfur distillate oil and pipeline-quality natural gas as auxiliary fuels. Distillate oil shall be new No. 2 oil with a maximum sulfur content of 0.05 percent sulfur by weight as determined by the appropriate test method listed in 40 CFR 60.17. "New" oil is oil that has been refined from crude oil and that has not been used in any manner that may contaminate it. Each boiler may startup solely on pipeline-quality natural gas or very low sulfur distillate oil.
13. Fossil Fuel Limitation: The firing of fossil fuels (distillate oil and natural gas) shall be less than 25 percent of the total heat input to each cogeneration boiler during any calendar quarter.
14. Fuel Records: The permittee shall maintain a daily log of the amounts and types of fuels used. The amount, heating value, and sulfur content of each fuel oil delivery shall be kept in a log for at least five years. For each calendar month, the actual monthly SO<sub>2</sub> emissions and the 12-month rolling total SO<sub>2</sub> emissions shall be determined and kept in a log.
15. Emergency Standby: The existing sugar mill boilers shall comply with the following requirements.
  - a. Sugar mill boiler Nos. 4, 5, 6, 10, 11, 12, 14, and 15 may be retained for emergency standby operation until April 1, 2002. These boilers shall only operate in the event of electrical or mechanical failure of all three of the cogeneration boilers. Simultaneous operation of any of these sugar mill boilers with any of the cogeneration boilers is prohibited. Sugar mill boiler Nos. 4, 5, 6, 10, 11, 12, 14, and 15 shall be permanently shutdown and rendered incapable of operation no later than October 1, 2002.
  - b. Each sugar mill boiler shall comply with its most recent air construction and operation permit, including all emissions performance, testing, and monitoring requirements as well as any applicable Alternate Sampling Procedures approved by the Department. The sugar mill boilers shall only fire fuels approved in the most recent permits.
16. Auxiliary Boiler: Sugar mill boiler No. 16 shall be operated in accordance with revised Permit No. PSD-FL-169A and the subsequently revised Title V operation permit.

#### EMISSIONS LIMITING STANDARDS

17. Emissions Standards: Based on the maximum permitted heat input to each cogeneration boiler, stack emissions shall not exceed the standards specified in the following table:

| Pollutant  | Averaging Period  | Emissions Standards Per Boiler <sup>j</sup>                                 |       |
|--|---|---|-------|
|  |   | lb/MMBtu  | lb/hr |
| Carbon Monoxide (CO) <sup>a</sup>                      | 30-day rolling CEMS avg.  | 0.50  | 357.5 |
|  | 12-month rolling CEMS avg.  | 0.35  |       |
| Nitrogen Oxides (NO <sub>x</sub> ) <sup>b</sup>        | 30-day rolling CEMS avg.  | 0.15  | 107.3 |
| Sulfur Dioxide (SO <sub>2</sub> ) <sup>c</sup>         | 24-hour rolling CEMS avg.   | 0.20  | 143.0 |
|  | 30-day rolling CEMS avg.  | 0.10  |       |
|  | 12-month rolling CEMS avg.  | 0.06  |       |
| Stack Opacity <sup>d</sup>                             | 6-minute block COMS avg.<br>(Alternative: EPA Method 9)   | ≤ 20% opacity, except for one 6-minute block per hour that is ≤ 27% opacity |       |
| Particulate Matter (PM/PM <sub>10</sub> ) <sup>e</sup> | 3-run test avg.   | 0.03  | 21.5  |
| Volatile Organic Compounds (VOC) <sup>f</sup>          | 3-run test avg.   | 0.06  | 42.9  |
| Lead <sup>g</sup>                                      | 3-run test avg.   | 1.5 x 10 <sup>-04</sup>   | NA    |
| Mercury <sup>h</sup>                                   | 3-run test avg.   | 5.4 x 10 <sup>-06</sup>   | NA    |
| Fluorides <sup>i</sup>                                 | Fluoride emissions shall be minimized by firing biomass as the primary fuel with natural gas and very low sulfur distillate oil as auxiliary fuels. |   |       |

### SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS

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- a. Compliance shall be determined by data collected from the required CO CEMS in terms of “lb/MMBtu of heat input”. The 30-day rolling average shall be determined by calculating the arithmetic average of all hourly emission rates for 30 successive boiler operating days and be consistent with the NO<sub>x</sub> monitoring requirements below. Compliance with the 12-month standard shall be based on the rolling average for each consecutive 12-month period.
- b. Compliance shall be determined by data collected from the required NO<sub>x</sub> CEMS in terms of “lb/MMBtu of heat input”. The 30-day rolling average shall be determined by calculating the arithmetic average of all hourly emission rates for 30 successive boiler operating days and the requirements of 40 CFR 60.13, 60.44a, 60.46a, 60.47a, 60.48a, and 60.49a. A boiler-operating day is any day in which any authorized fuel is fired.
- c. Compliance with the SO<sub>2</sub> standards shall be determined by data collected from the required SO<sub>2</sub> CEMS in terms of “lb/MMBtu of heat input”. The 24-hour average shall be determined by calculating the arithmetic average of all valid hourly emission rates for 24 successive boiler-operating hours. The 30-day rolling average shall be determined by calculating the arithmetic average of all hourly emission rates for 30 successive boiler-operating days and the requirements of 40 CFR 60.13, 60.43a, 60.46a, 60.47a, 60.48a, and 60.49a. Compliance with the 12-month standard shall be based on the rolling average for each consecutive 12-month period. Valid SO<sub>2</sub> hourly averages shall not be excluded from any compliance average. {Permitting Note: Potential emissions of sulfuric acid mist are minimized by the effective control of SO<sub>2</sub> emissions with the firing of low sulfur fuels. For reporting purposes, sulfuric acid mist emissions shall be estimated as 6% of the total measured SO<sub>2</sub> emissions.}
- d. Continuous compliance with the opacity standard shall be determined by data collected from the required COMS in terms of “percent opacity” based on 6-minute block averages. Alternatively, compliance may also be determined by conducting EPA Method 9 observations.
- e. Compliance with the particulate matter standards shall be determined by the average of three test runs conducted in accordance with EPA Method 5. For purposes of reporting PM<sub>10</sub> emissions, it shall be assumed that all particulate matter emitted is PM<sub>10</sub>.
- f. Compliance with the VOC standards shall be determined by the average of three test runs conducted in accordance with EPA Method 25A based on propane. In addition, the permittee may choose to conduct EPA Method 18 concurrently with EPA Method 25A to deduct emissions of methane and ethane from the measured VOC emissions. Otherwise, all emissions measured by EPA Method 25A shall be considered “volatile organic compounds”.
- g. Compliance with the lead standards shall be determined by the average of three test runs conducted in accordance with EPA Method 12 or 29.
- h. Compliance with the mercury standards shall be determined by the average of three test runs conducted in accordance with EPA Method 101A or 29. Emissions in excess of this standard shall be a violation of the permit. In addition, if two or more cogeneration boilers exceed the annual mercury emission limit, the permittee shall reactivate the carbon injection system for all three units within 30 days of the stack test report due date. The minimum carbon injection rate shall be at least 7 pounds per hour. Within 60 days of the stack test report due date, the permittee shall submit to the permitting and compliance authorities a mercury testing protocol designed to establish an effective carbon injection rate to control mercury emissions. Within 60 days of receiving approval for the mercury testing protocol by the permitting authority, the permittee shall begin the approved testing program. At a minimum, the permittee shall submit a full engineering report summarizing the uncontrolled emissions, controlled emissions, fuels, operating capacities, and recommending a minimum activated carbon injection rate to control mercury emissions.
- i. This fuel specification is the BACT standard for fluoride emissions. {Permitting Note: For reporting purposes only, the fluoride emissions factor for firing biomass is  $1.9 \times 10^{-04}$  lb/MMBtu.

### SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS

- j. Each boiler shall comply with the standards when firing any combination of authorized fuels. Required compliance tests shall be performed in accordance with the requirements of Condition No. 20. The cogeneration boilers are also subject to the new source performance standards (NSPS Subpart Da) for new electric utility steam generating units. These requirements include the general provisions of Subpart A in 40 CFR 60, as well as the following source-specific applicable requirements: 60.40a (Applicability and Designation of Affected Facility); 60.41a (Definitions); 60.42a (Standards for Particulate Matter); 60.43a (Standard for Sulfur Dioxide); 60.44a (Standard for Nitrogen Oxides); 60.46a (Compliance Provisions); 60.47a (Emissions Monitoring); 60.48a (Compliance Determination Procedures and Methods); and 60.49a (Reporting Requirements). The cogeneration boilers are also subject to Rule 62-296.405(2), F.A.C. (Fossil Fuel Steam Generators with more than 250 MMBtu per Hour of Heat Input), Rule 62-296.410, F.A.C. (Carbonaceous Fuel Burning Equipment), and Rule 62-296.570, F.A.C. (Reasonably Available Control Technology Requirements for Major VOC and NOx Facilities).

{Permitting Note: Appendix D identifies the final BACT determinations for the cogeneration boilers.}

18. Material Handling: The following conditions apply to the biomass, ash, and activated carbon handling facilities.
- All conveyors and conveyor transfer points shall be enclosed to preclude PM emissions (except those directly associated with the stacker/reclaimer, for which enclosure is operationally infeasible).
  - Water sprays, chemical wetting agents, and/or stabilizers shall be applied to storage piles, handling equipment, unenclosed transfer points, etc. during dry periods and as necessary to prevent visible emissions. When adding, moving or removing material from the storage pile, visible emissions of no more than 20% opacity are allowed.
  - 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. Visible emissions from any storage silo shall not exceed 5 percent opacity based on a 6-minute block average. A visible emissions test (EPA Method 9) shall be performed at least annually for each silo that is loaded with carbon during the federal fiscal year.

#### STARTUP, SHUTDOWN, AND MALFUNCTION

19. Startup, Shutdown, and Malfunction Requirements: The permittee shall comply with the following requirements regarding periods of startup, shutdown, and malfunction for each cogeneration boiler.
- Definitions*
    - Excess emissions are emissions of pollutants in excess of those allowed by any applicable air pollution rule of the Department, or by a permit issued pursuant to any such rule or Chapter 62-4, F.A.C. The term applies only to conditions that occur during startup, shutdown, or malfunction. [Rule 62-210.200(106), F.A.C.]
    - Startup is the commencement of operation of a boiler which has shut down or ceased operation for a period of time sufficient to cause temperature, pressure, chemical or pollution control device imbalances, which may result in excess emissions. Periods of startup for each boiler shall end once steam generation reaches 150,000 pounds per hour. A cold startup is a startup after the boiler has been shutdown for 24 hours or more. A warm startup is a startup after the boiler has been shutdown for less than 24 hours.
    - Shutdown is the cessation of the operation of a boiler for any purpose after steam generation drops below 150,000 pounds per hour.
    - Malfunction is any unavoidable mechanical and/or electrical failure of air pollution control equipment or process equipment or of a process resulting in operation in an abnormal or unusual

### SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS

manner. [Rule 62-210.200(160), F.A.C.]

- b. *Prohibition:* Excess emissions which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during startup, shutdown, or malfunction shall be prohibited. Emissions data recorded during such preventable periods shall be included in the compliance averages. [Rule 62-210.700(4), F.A.C.]
- c. *Monitoring Data Exclusion:* Each continuous monitoring system shall operate and record data during all periods of operation (including startup, shutdown, and malfunction) except for continuous monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments. Provided the operators implement best operational practices to minimize the amount and duration of emissions, the following conditions apply. Pursuant to Rules 62-210.700(1) and (5), F.A.C., these conditions consider the variations in operation of the cogeneration boilers.
- 1) Natural gas or distillate oil shall be fired during startup prior to energizing the electrostatic precipitator (ESP). Once the operating temperature recommended by the ESP manufacturer is maintained (approximately 340° F to 350 ° F), it shall be placed on line and the boiler shall comply with the opacity standard specified in Condition No. 17. The ESP shall be on line and functioning properly before firing any biomass. The opacity limit does not apply when the ESP is off line due to warm startup, cold startup, or shutdown. No more than twenty 6-minute block averages of opacity monitoring data shall be excluded in a 24-hour period due to documented malfunctions.
  - 2) Hourly CO and NOx emission rate values collected during startup, shutdown, or documented malfunction may be excluded from the 30-day and/or 12-month compliance averages. No more than six hourly emission rate values (CO or NOx) shall be excluded in a 24-hour period due to a cold startup. No more than three hourly emission rate values (CO or NOx) shall be excluded in a 24-hour period due to a warm startup. No more than two hourly emission rate values (CO or NOx) shall be excluded in a 24-hour period due to a malfunction. No more than two hourly emission rate values (CO or NOx) shall be excluded in a 24-hour period due to a shutdown. For each cogeneration boiler, no more than 183 hourly emission rate values shall be excluded during any calendar quarter.
  - 3) All valid hourly SO<sub>2</sub> emission rate values shall be included in all of the compliance averages. [40 CFR 60.46a and 60.49a]
  - 4) To “document” a malfunction, the operator shall notify the Compliance Authority within one working day of the malfunction by phone, facsimile, or electronic mail. The notification shall include the date and time of malfunction, a description of the malfunction and probable cause, steps to taken to minimize emissions, and actions taken to correct the problem. [Rules 62-210.700(6) and 62-4.130, F.A.C.]
- d. *Reporting:* In conjunction with the annual operating report, the permittee shall identify the number of startups, the number of shutdowns, and the number of malfunctions that occurred during the year for each boiler. For each boiler’s CO and NOx monitors, the report shall identify the annual hours of emission data excluded from the compliance determination due to each type of incident (startups; shutdowns; and documented malfunctions).

[Rule 62-210.700, F.A.C.; Rule 62-4.070(3), F.A.C.; 40 CFR 60.8; and 40 CFR 60.46a]

### COMPLIANCE METHODS AND REPORTING

#### 20. Stack Test Requirements

- a. *Initial Tests:* Within 90 days of the effective date of this permit, the permittee shall conduct compliance tests for emissions of lead, mercury, particulate matter, and volatile organic compounds. If conducted within the 12-month period prior to the effective date of this permit, previous emissions tests may be used to demonstrate compliance for these pollutants. The Department may require initial tests to be

**SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS**

repeated if major physical or operational changes are made that affect main components such as the boiler, fuels, and/or pollution control equipment.

- b. *Annual Tests:* At least once during each federal fiscal year, the permittee shall conduct compliance tests for emissions of mercury, particulate matter, and volatile organic compounds.
- c. *Renewal Tests:* Within the 12-month period prior to submitting an application to renew the Title V air operation permit, the permittee shall conduct compliance tests for emissions of lead, mercury, particulate matter, and volatile organic compounds. Tests shall be conducted at five-year intervals.
- d. *Test Procedures:* The emission compliance tests shall be conducted in accordance with the provisions of Chapter 62-297, F.A.C., 40 CFR 60.46a (NSPS Subpart Da), and as summarized in Appendix C of this permit. The permittee shall notify the Compliance Authority in writing at least 30 days prior to any initial NSPS performance tests and at least 15 days prior to any other required tests. The biomass fuel feed for each test run shall consist of at least 45% wood materials by weight. Testing of emissions shall be conducted with each cogeneration boiler operating at permitted capacity, which is defined as a heat input rate between 643 and 715 MMBtu/hour and firing 100% biomass. If it is impracticable to test at permitted capacity, a cogeneration boiler may be tested at less than the maximum permitted capacity; in this case, subsequent operation is limited to 110 percent of the test rate until a new test is conducted. Within three days of completing a test below permitted capacity, the permittee shall provide written notification of the restricted operational capacity to the Compliance Authority. 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. [Rule 62-297.310(7)(a)9, F.A.C. and 40 CFR 60.7, 60.8]
- e. *Test Methods:* Compliance with the emission limits specified in this permit shall be demonstrated using EPA Methods, as contained in 40 CFR Part 60 (Standards of Performance for New Stationary Sources), or 40 CFR Part 61 (National Emission Standards for Hazardous Air Pollutants).

| EPA Method* | Description   |
|-------------|---|
| 1           | Selection of sample site and velocity traverses   |
| 2           | Stack gas flow rate when converting concentrations to or from mass emission limits  |
| 3A          | Gas analysis when needed for calculation of molecular weight or percent O <sub>2</sub>  |
| 4           | Moisture content when converting stack velocity to dry volumetric flow rate for use in converting concentrations in dry gases to or from mass emission limits   |
| 5           | Particulate matter emissions  |
| 6 or 6C     | Sulfur dioxide emissions  |
| 7 or 7E     | Nitrogen oxide emissions  |
| 9           | Visible emissions determination of opacity<br>{Permitting Note: Although each unit is required to monitor opacity with a COMS, visible observations may also be used to demonstrate compliance.}  |
| 10          | Carbon monoxide emissions   |
| 12          | Inorganic lead emissions  |
| 19          | Calculation of sulfur dioxide and nitrogen oxide emission rates   |
| 25A         | Volatile organic compounds emissions<br>{Permitting Note: EPA Method 18 may be conducted concurrently with EPA Method 25A to deduct emissions of methane and ethane from the measured VOC emissions. Otherwise, all emissions measured by EPA Method 25A shall be considered "volatile organic compounds".} |
| 29          | Multiple metals emissions   |
| 101A        | Particulate and gaseous mercury emissions   |

### SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS

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No other methods may be used to demonstrate compliance unless prior written approval is received from the Department in accordance with a permit modification or an alternate sampling procedure issued pursuant to 62-297.620, F.A.C. Other applicable testing requirements are included in Appendix C of the permit. The permittee shall use CEMS and COMS data to demonstrate compliance with the emissions standards for CO, NO<sub>x</sub>, opacity, and SO<sub>2</sub>. [Rules 62-204.800 and 62-297.100, F.A.C.; 40 CFR 60, Appendix A]

21. Continuous Monitor Requirements: The permittee shall demonstrate compliance with the emissions standards for CO, NO<sub>x</sub>, opacity, and SO<sub>2</sub> based on data collected from the continuous emissions monitoring systems (CEMS) and continuous opacity monitoring systems (COMS) required for each cogeneration boiler. Appendix E specifies the minimum requirements for monitoring equipment.
22. Quarterly Reports: For each cogeneration boiler, the permittee shall submit a quarterly report for each required continuous emissions and opacity monitoring system in accordance with the requirements specified in Appendix E of this permit. The permittee shall also submit a quarterly summary of the fuel analyses, fuel usage, and equipment malfunctions. The fuel usage summary shall include the monthly heat input and the 12-month rolling total heat input for the cogeneration boilers. For each malfunction, the report shall identify the cause (if known), and corrective actions taken. The quarterly reports and summaries shall be submitted to the Compliance Authority no later than 30 days following each calendar quarter.
23. Annual Operating Report: The permittee shall submit an annual report that summarizes the actual operating rates and emissions from this facility. Annual operating reports shall be submitted to the Compliance Authority by March 1st of each year. [Rule 62-210.370(2), F.A.C.]

**SECTION IV. APPENDICES**  
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- Appendix A. Citation Format
- Appendix B. General Conditions
- Appendix C. Standard Requirements
- Appendix D. Final BACT Determinations
- Appendix E. Continuous Monitor Requirements

**SECTION IV. APPENDIX A**

**CITATION FORMAT**

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*The following examples illustrate the format used in the permit to identify applicable permitting actions and regulations.*

**REFERENCES TO PREVIOUS PERMITTING ACTIONS**

Old Permit Numbers

*Example:* Permit No. AC50-123456 or Air Permit No. AO50-123456

*Where:* “AC” identifies the permit as an Air Construction Permit  
“AO” identifies the permit as an Air Operation Permit  
“123456” identifies the specific permit project number

New Permit Numbers

*Example:* Permit Nos. 099-2222-001-AC, 099-2222-001-AF, 099-2222-001-AO, or 099-2222-001-AV

*Where:* “099” represents the specific county ID number in which the project is located  
“2222” represents the specific facility ID number  
“001” identifies the specific permit project  
“AC” identifies the permit as an air construction permit  
“AF” identifies the permit as a minor federally enforceable state operation permit  
“AO” identifies the permit as a minor source air operation permit  
“AV” identifies the permit as a Title V Major Source Air Operation Permit

PSD Permit Numbers

*Example:* Permit No. PSD-FL-317

*Where:* “PSD” means issued pursuant to the Prevention of Significant Deterioration of Air Quality  
“FL” means that the permit was issued by the State of Florida  
“317” identifies the specific permit project

**RULE CITATION FORMATS**

Florida Administrative Code (F.A.C.)

*Example:* [Rule 62-213.205, F.A.C.]

*Means:* Title 62, Chapter 213, Rule 205 of the Florida Administrative Code

Code of Federal Regulations (CFR)

*Example:* [40 CFR 60.7]

*Means:* Title 40, Part 60, Section 7



**SECTION IV. APPENDIX B**  
**GENERAL CONDITIONS**

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The permittee shall comply with the following general conditions from Rule 62-4.160, F.A.C.

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.
2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey and vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.
4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.
5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.
6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.
7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:
  - a. Have access to and copy and records that must be kept under the conditions of the permit;
  - b. Inspect the facility, equipment, practices, or operations regulated or required under this permit, and,
  - c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:
  - a. A description of and cause of non-compliance; and
  - b. The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, Florida

**SECTION IV. APPENDIX B**  
**GENERAL CONDITIONS**

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Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.
11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 62-4.120 and 62-730.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.
12. This permit or a copy thereof shall be kept at the work site of the permitted activity.
13. This permit also constitutes:
  - a. Determination of Best Available Control Technology (X);
  - b. Determination of Prevention of Significant Deterioration (X); and
  - c. Compliance with New Source Performance Standards (X).
14. The permittee shall comply with the following:
  - a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.
  - b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application or this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.
  - c. Records of monitoring information shall include:
    - 1) The date, exact place, and time of sampling or measurements;
    - 2) The person responsible for performing the sampling or measurements;
    - 3) The dates analyses were performed;
    - 4) The person responsible for performing the analyses;
    - 5) The analytical techniques or methods used; and
    - 6) The results of such analyses.
15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

**SECTION IV. APPENDIX C**  
**STANDARD REQUIREMENTS**

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*{Permitting Note: The following conditions are generally applicable to all emissions units.}*

**EMISSIONS AND CONTROLS**

1. Plant Operation - Problems: If temporarily unable to comply with any of the conditions of the permit due to breakdown of equipment or destruction by fire, wind or other cause, the permittee shall notify each Compliance Authority as soon as possible, but at least within one working day, excluding weekends and holidays. The notification shall include: pertinent information as to the cause of the problem; steps being taken to correct the problem and prevent future recurrence; and, where applicable, the owner's intent toward reconstruction of destroyed facilities. Such notification does not release the permittee from any liability for failure to comply with the conditions of this permit or the regulations. [Rule 62-4.130, F.A.C.]
2. Circumvention: The permittee shall not circumvent the air pollution control equipment or allow the emission of air pollutants without this equipment operating properly. [Rule 62-210.650, F.A.C.]
3. Excess Emissions Prohibited: Excess emissions caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure that may reasonably be prevented during startup, shutdown or malfunction shall be prohibited. [Rule 62-210.700(4), F.A.C.]
4. Excess Emissions - Notification: In case of excess emissions resulting from malfunctions, the permittee shall notify the Department or the appropriate Local Program in accordance with Rule 62-4.130, F.A.C. A full written report on the malfunctions shall be submitted in a quarterly report, if requested by the Department. [Rule 62-210.700(6), F.A.C.]
5. VOC or OS Emissions: No person shall store, pump, handle, process, load, unload or use in any process or installation, volatile organic compounds or organic solvents without applying known and existing vapor emission control devices or systems deemed necessary and ordered by the Department. [Rule 62-296.320(1), F.A.C.]
6. Objectionable Odor Prohibited: No person shall cause, suffer, allow or permit the discharge of air pollutants, which cause or contribute to an objectionable odor. [Rule 62-296.320(2), F.A.C.]
7. General Visible Emissions: No person shall cause, let, permit, suffer or allow to be discharged into the atmosphere the emissions of air pollutants from any activity equal to or greater than 20 percent opacity. [Rule 62-296.320(4)(b)1, F.A.C.]
8. Unconfined Particulate Emissions: During the construction period, unconfined particulate matter emissions shall be minimized by dust suppressing techniques such as covering and/or application of water or chemicals to the affected areas, as necessary. [Rule 62-296.320(4)(c), F.A.C.]

**TESTING REQUIREMENTS**

9. Operating Rate During Testing: Testing of emissions shall be conducted with the emissions unit operating at permitted capacity. Permitted capacity is defined as 90 to 100 percent of the maximum operation rate allowed by the permit. If it is impractical to test at permitted capacity, an emissions unit may be tested at less than the maximum permitted capacity; in this case, subsequent emissions unit operation is limited to 110 percent of the test rate 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. [Rule 62-297.310(2), F.A.C.]
10. Calculation of Emission Rate: For each emissions performance test, the indicated emission rate or concentration shall be the arithmetic average of the emission rate or concentration determined by each of the three separate test runs unless otherwise specified in a particular test method or applicable rule. [Rule 62-297.310(3), F.A.C.]
11. Test Procedures: Tests shall be conducted in accordance with all applicable requirements of Chapter 62-297, F.A.C.
  - a. Required Sampling Time. Unless otherwise specified in the applicable rule, the required sampling time for each test run shall be no less than one hour and no greater than four hours, and the sampling time at each sampling point shall be of equal intervals of at least two minutes. The minimum observation period for a visible emissions

**SECTION IV. APPENDIX C**  
**STANDARD REQUIREMENTS**

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compliance test shall be thirty (30) minutes. The observation period shall include the period during which the highest opacity can reasonably be expected to occur.

- b. *Minimum Sample Volume.* Unless otherwise specified in the applicable rule or test method, the minimum sample volume per run shall be 25 dry standard cubic feet.
- c. *Calibration of Sampling Equipment.* Calibration of the sampling train equipment shall be conducted in accordance with the schedule shown in Table 297.310-1, F.A.C.

[Rule 62-297.310(4), F.A.C.]

12. Determination of Process Variables

- a. *Required Equipment.* The owner or operator of an emissions unit for which compliance tests are required shall install, operate, and maintain equipment or instruments necessary to determine process variables, such as process weight input or heat input, when such data are needed in conjunction with emissions data to determine the compliance of the emissions unit with applicable emission limiting standards.
- b. *Accuracy of Equipment.* Equipment or instruments used to directly or indirectly determine process variables, including devices such as belt scales, weight hoppers, flow meters, and tank scales, shall be calibrated and adjusted to indicate the true value of the parameter being measured with sufficient accuracy to allow the applicable process variable to be determined within 10% of its true value.

[Rule 62-297.310(5), F.A.C.]

13. Sampling Facilities: The permittee shall provide stack testing facilities and sampling locations in accordance with Rule 62-297.310(6), F.A.C.

14. Test Notification: The permittee shall notify the Compliance Authority in writing at least 30 days prior to any initial NSPS performance tests and at least 15 days prior to any other required tests. [Rule 62-297.310(7)(a)9, F.A.C. and 40 CFR 60.7, 60.8]

15. Special Compliance Tests: When the Department, after investigation, has good reason (such as complaints, increased visible emissions or questionable maintenance of control equipment) to believe that any applicable emission standard contained in a Department rule or in a permit issued pursuant to those rules is being violated, it shall require the owner or operator of the emissions unit to conduct compliance tests which identify the nature and quantity of pollutant emissions from the emissions unit and to provide a report on the results of said tests to the Department. [Rule 62-297.310(7)(b), F.A.C.]

**RECORDS AND REPORTS**

16. Records Retention: All measurements, records, and other data required by this permit shall be documented in a permanent, legible format and retained for at least five (5) years following the date on which such measurements, records, or data are recorded. Records shall be made available to the Department upon request. [Rules 62-4.160(14) and 62-213.440(1)(b)2, F.A.C.]

17. Annual Operating Report: The permittee shall submit an annual report that summarizes the actual operating rates and emissions from this facility. Annual operating reports shall be submitted to the Compliance Authority by March 1st of each year. [Rule 62-210.370(2), F.A.C.]

18. Emissions Performance Test Reports: A report indicating the results of any required emissions performance test shall be submitted to each Compliance Authority no later than 45 days after completion of the last test run. The test report shall provide sufficient detail on the tested emission unit and the procedures used to allow the Department to determine if the test was properly conducted and if the test results were properly computed. At a minimum, the test report shall provide the applicable information listed in Rule 62-297.310(8)(c), F.A.C. [Rule 62-297.310(8), F.A.C.]

**SECTION IV. APPENDIX D**  
**FINAL BACT DETERMINATIONS**

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**PSD Applicability**

The existing facility is located in Palm Beach County, an area that is in attainment with (or designated as unclassifiable for) all air pollutants subject to a National Ambient Air Quality Standard (NAAQS). The cogeneration plant is classified as a fossil fuel-fired steam electric plant, which is one of the 28 PSD Major Facility Categories identified in Table 62-212.400-1, F.A.C. Potential emissions from the plant are greater than 100 tons per year for at least one regulated pollutant. As such, the facility is "major" with respect to the Prevention of Significant Deterioration (PSD) of Air Quality. The proposed project will result in net emissions increases for carbon monoxide, fluorides, sulfur dioxide, and sulfuric acid mist that are greater than the PSD significant emission rates identified in Table 62-212.400-2, F.A.C. Therefore, the project is subject to PSD review and the Department must determine the Best Available Control Technology (BACT) for these pollutants in accordance with Rule 62-212.400, F.A.C.

**Carbon Monoxide (CO)**

*BACT Standards:* 0.50 lb/MMBtu based on a 30-day rolling CEMS average, and  
0.35 lb/MMBtu based on a 12-month rolling CEMS average

*Control Technology:* CO emissions are minimized by good combustion practices.

*Compliance Method:* Compliance demonstrated by continuous emissions monitoring system (CEMS).

*Comments:* In 1993, the original project did not require a BACT determination because the result was a net CO emissions decrease of more than 8000 tons per year due to the shutdown of existing sugar mill boilers. The 2001 modification did not increase allowable emissions, but could result in a net increase of actual emissions. Therefore, a BACT determination was required for the existing cogeneration boilers.

**Fluorides (F1)**

*BACT Standard:* Fluoride emissions shall be minimized by firing biomass as the primary fuel with natural gas and very low sulfur distillate oil as auxiliary fuels.

*Control Technology:* Fluoride emissions minimized by firing clean fuels.

*Compliance Method:* Compliance assumed providing only authorized fuels are fired.

*Comments:* In 1993, the original project required a BACT determination for fluoride emissions due to the inclusion of coal as an emergency backup fuel. The 2001 modification removed the authorization to fire coal as well as the fluoride emissions standards when firing coal and distillate oil. Uncontrolled fluoride emissions from firing biomass, natural gas, and distillate oil are expected to be much less than 4 tons per year.

**Sulfur Dioxide (SO<sub>2</sub>)**

*BACT Standards:* 0.20 lb/MMBtu based on a 24-hour rolling CEMS average;  
0.10 lb/MMBtu based on a 30-day rolling CEMS average; and  
0.06 lb/MMBtu based on a 12-month rolling CEMS average

*Control Technology:* SO<sub>2</sub> emissions are minimized by firing biomass as the primary fuel with natural gas and very low sulfur distillate oil as auxiliary fuels (low sulfur fuels).

*Compliance Method:* Compliance demonstrated by continuous emissions monitoring system (CEMS).

*Comments:* In 1993, the original project required a BACT determination for SO<sub>2</sub> emissions due to the inclusion of coal as an emergency backup fuel. The 2001 modification removed the authorization to fire coal and resulted in a decrease in allowable SO<sub>2</sub> emissions. However, actual SO<sub>2</sub> emissions were expected to result in a significant net increase, which required a revised BACT determination for the existing cogeneration boilers.

**Sulfuric Acid Mist (SAM)**

*BACT Standard:* Potential SAM emissions shall be minimized by the effective control of SO<sub>2</sub> emissions with the firing of low sulfur fuels.

**SECTION IV. APPENDIX D**  
**FINAL BACT DETERMINATIONS**

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*Control Technology:* SAM emissions are minimized by firing biomass as the primary fuel with natural gas and very low sulfur distillate oil as auxiliary fuels (low sulfur fuels).

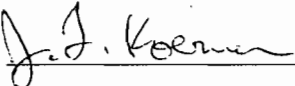
*Compliance Method:* Compliance assumed providing only authorized fuels are fired.

*Comments:* In 1993, the original project required a BACT determination for SAM emissions due to the inclusion of coal as an emergency backup fuel. The 2001 modification removed the authorization to fire coal and resulted in a decrease in allowable SAM emissions. However, actual SAM emissions were expected to result in a significant net increase, which required a revised BACT determination for the existing cogeneration boilers. Based on stack testing for the existing cogeneration boilers, SAM emissions are estimated to be 6% of the total SO<sub>2</sub> emissions.

**Final BACT Determinations**

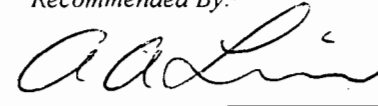
In accordance with Rule 62-212.400, F.A.C., the Department determines that the above standards represent the Best Available Control Technology (BACT) for the existing biomass cogeneration boilers. The Department's technical review and rationale for the BACT determinations are presented in Technical Evaluation and Preliminary Determination issued concurrently with the draft permit for this project.

*Determination By:*

  
\_\_\_\_\_  
J. F. Koerner, P.E., Project Engineer  
New Source Review Section

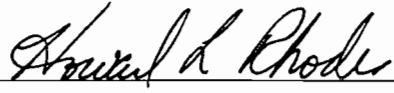
1-30-02  
(Date)

*Recommended By:*

  
\_\_\_\_\_  
C. H. Fancy, Chief  
Bureau of Air Regulation

1/30  
(Date)

*Approved By:*

  
\_\_\_\_\_  
Howard L. Rhodes, Director  
Division of Air Resources Management

1/31/02  
(Date)

**SECTION IV. APPENDIX E**  
**CONTINUOUS MONITOR REQUIREMENTS**

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*{Permitting Note: The following summarizes the basic monitoring requirements for the cogeneration boilers.}*

1. Process and Control Parameters: The permittee shall install, calibrate, maintain, and operate continuous monitoring systems to measure and record the following process and control equipment parameters:
  - a. *Power Output*. The net power generation (MW) delivered for sale to the electrical power grid shall be continuously monitored and recorded in 1-hour block averages.
  - b. *Fuel Feed Rate*. Fuel flow meters equipped with totalizers are required to monitor and record the fuel feed rates for distillate oil (gallons) and natural gas (million cubic feet). Biomass feed rates (tons of bagasse and tons of wood) shall be calculated and recorded based the weigh scales. The permittee shall continuously monitor the fuel input rate based on the fuel flow monitors calculating the maximum heat input rate (24 hour average) for each fuel during each day of operation.
  - c. *Steam Parameters*. Each cogeneration boiler shall be equipped with monitors to measure and record the steam temperature (° F), steam pressure (psig), and steam production (pounds).
  - d. *Urea Injection Rate (SNCR System)*. The urea injection rate shall be continuously monitored and recorded for each cogeneration boiler. The urea injection rate shall be compared to actual NO<sub>x</sub> emissions data recorded by the CEMS. The permittee shall identify minimum urea injection rates for various load conditions that ensure compliance with the NO<sub>x</sub> standards. Should the NO<sub>x</sub> CEMS be unavailable, the urea injection rate shall be maintained at an appropriate minimum level.
  - e. *Activated Carbon Injection Rate (Mercury Control System)*. If the mercury injection system is reactivated, the carbon injection rate shall be continuously monitored and recorded. Based on the testing required in this permit, the permittee shall identify and maintain minimum carbon injection rates to ensure effective control of mercury emissions.

The permittee shall maintain written procedures for inspecting, calibrating, and maintaining the process and control monitoring equipment. [Rules 62-4.070 and 62-212.400(BACT), F.A.C.]

2. CEMS and COMS: For each cogeneration boiler, the permittee shall install, calibrate, maintain, and operate continuous emissions monitors (CEMS) and continuous opacity monitors (COMS) to measure and record emissions of carbon monoxide (CO), nitrogen oxides (NO<sub>x</sub>), oxygen (O<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), and opacity in a manner sufficient to demonstrate compliance with the standards of this permit.
  - a. *Performance Specifications*. Each monitor shall be located in the ductwork between the electrostatic precipitator and the stack (or in the stack) to obtain emissions measurements representative of actual stack emissions. Each CEMS and COMS shall comply with the corresponding performance specifications that identify location, installation, design, performance, and reporting requirements.
    - (1) Opacity shall comply with Performance Specification 1 in Appendix B of 40 CFR 60.
    - (2) NO<sub>x</sub> and SO<sub>2</sub> CEMS shall comply with Performance Specification 2 in Appendix B of 40 CFR 60. The SO<sub>2</sub> reference method for the annual RATA shall be EPA Method 6 (or 6C) in Appendix A of 40 CFR 60. The NO<sub>x</sub> reference method for the annual RATA shall be EPA Method 7 (or 7E) in Appendix A of 40 CFR 60.
    - (3) O<sub>2</sub> CEMS shall comply with Performance Specification 3 in Appendix B of 40 CFR 60. The O<sub>2</sub> reference method for the annual RATA shall be EPA Method 3A Appendix A of 40 CFR 60.
    - (4) CO CEMS shall meet Performance Specification 4 or 4A in Appendix B of 40 CFR 60. The CO reference method for the annual RATA shall be EPA Method 10 in Appendix A of 40 CFR 60.
  - b. *Data Collection*. Each CEMS and COMS shall record emissions data at all times including episodes of startup, shutdown, and malfunction. Emissions data recorded during periods of startup, shutdown, or malfunction may only be excluded from the compliance averages in accordance with the requirements specified in Section III of this permit. To the extent practicable, the permittee shall minimize the duration of data excluded for startup, shutdown and malfunctions.

Each CEMS shall be designed and operated to sample, analyze, and record emissions data evenly spaced over a 1-

**SECTION IV. APPENDIX E**  
**CONTINUOUS MONITOR REQUIREMENTS**

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hour period. Each 1-hour average shall be computed using at least one data point in each fifteen minute quadrant of the 1-hour block during which the unit combusted fuel. Notwithstanding this requirement, each 1-hour average shall be computed from at least two data points separated by a minimum of 15 minutes. All valid measurements or data points collected during a 1-hour block shall be used to calculate the 1-hour emission averages. CO, NO<sub>x</sub>, and SO<sub>2</sub> CEMS shall express the 1-hour emission averages in terms of "lb/MMBtu of heat input". O<sub>2</sub> CEMS shall express the 1-hour emission average in terms of "percent by volume". A 30-day rolling emission average shall be the average of all valid 1-hour emission averages collected during the 30-day period. A 12-month rolling emission average shall be the average of all valid 1-hour emission averages collected during the 12-month period. NO<sub>x</sub> and SO<sub>2</sub> CEMS shall comply with NSPS Subpart Da in 40 CFR 60.

Each COMS shall be designed and operated to complete a minimum of one cycle of sampling and analyzing for each successive 10-second period and one cycle of data recording for each successive 6-minute period. Opacity shall be recorded in 6-minute block averages.

- c. *Quality Assurance Procedures.* Each CEMS shall comply with the applicable quality assurance procedures specified in Appendix F of 40 CFR 60. These procedures include methods such as calibration, calibration drift, data recording, accuracy assessment, calculations, audit procedures, preventive maintenance, corrective actions, and reporting.
- d. *Monitor Availability.* Monitor availability shall not be less than 95% in any calendar quarter. In the event 95% availability is not achieved, the permittee shall provide the Department with a report identifying the problems in achieving 95% availability and a plan of corrective actions that will be taken to achieve 95% availability. The permittee shall implement the reported corrective actions within the next calendar quarter. Failure to take corrective actions or continued failure to achieve the minimum monitor availability shall be violations of this permit.
- e. *Other Applicable Requirements:* Each CEMS shall comply with the following applicable requirements Rules 62-204.800 and 62-297.520, F.A.C. (Continuous Monitor Performance Specifications); 40 CFR 60.13 (Subpart A - Monitoring Requirements); 40 CFR 60.47a (Subpart Da - Emissions Monitoring); 40 CFR 60.48a (Subpart Da - Compliance Determination Procedures and Methods); 60.49a (Subpart Da - Reporting Requirements).
- f. *Quarterly Reports:* For each cogeneration boiler, the permittee shall submit the report on the following page to summarize each required continuous emissions and opacity monitoring system. The authorized representative shall certify that the information provided in each quarterly report is true, accurate, and complete to the best of his/her knowledge. Each quarterly report is due no later than 30 days following the calendar quarter.



**QUARTERLY CONTINUOUS MONITOR SYSTEM (CMS) REPORTS**

|   |  |   |                               |
|---|--|---|-------------------------------|
| <b>Facility Name</b><br>Okeelanta Cogeneration Plant  |  | <b>ARMS ID No.</b><br>0990332   | <b>Title V Air Permit No.</b> |
| <b>Facility Address/Location</b><br>Located off U.S. Highway 27 South, approximately six miles south of South Bay in Palm Beach County, Florida   |  |   |                               |
| <b>Emissions Unit Description</b><br>Spreader stoker boiler with maximum heat input of 715 MMBtu/hour<br>ARMS EU ID No. _____ Cogeneration Boiler: ___ A ___ B ___ C  |  | <b>Unit Operation in Calendar Quarter</b><br>_____ hours  |                               |
| <b>Control Equipment</b><br>Mercury - activated carbon injection; Nitrogen Oxides – low NOx burners and selective non-catalytic reduction (NOx) system; Particulate Matter – mechanical dust collectors and electrostatic precipitators   |  |   |                               |
| <b>Primary Fuel</b><br>Biomass, which includes bagasse from adjacent sugar mill and wood material from area suppliers (clean construction and demolition wood debris, yard trash, land clearing debris, and other clean cellulose and vegetative matter)  |  | <b>Auxiliary Fuels</b><br>Pipeline-quality natural gas<br>Distillate oil (≤ 0.05% sulfur by wt.)  |                               |
| <b>Pollutant Monitored (Check one.)</b><br>___ CO ___ NOx ___ SO2 ___ Opacity   |  | <b>Calendar Quarter of Operation Covered (Check one.)</b><br>Year: _____ ___ 1 ___ 2 ___ 3 ___ 4  |                               |
| <b>Continuous Monitor MS Information</b><br>Manufacturer: _____<br>Model No. _____<br>Date of last certification or audit: _____  |  | <b>Emission Standards</b><br>_____ lb/MMBtu of heat input, 30-day rolling avg.<br>_____ lb/MMBtu of heat input, 12-month rolling avg.   |                               |
| <b>Emission Data Summary</b><br>1. Duration of excess emissions in reporting period due to:<br>a. Startup/shutdown..... _____<br>b. Control equipment problems ..... _____<br>c. Process problems ..... _____<br>d. Other known causes..... _____<br>e. Unknown causes ..... _____<br>2. Total duration of excess emissions ..... _____<br>3. $\frac{[\text{Total duration of excess emissions}]}{[\text{Total source operating time}]} \times (100\%) \dots\dots$ _____<br><br><i>Note: Report "excess emissions" as emission averages that are in excess of a permitted emissions standard. For gases, report excess emissions in terms of hours. For opacity, report excess emissions in terms of minutes.</i> |  | <b>CMS Performance Summary</b><br>1. CMS downtime in reporting period due to:<br>a. Monitor Equipment Malfunctions ..... _____<br>b. Non-Monitor Equipment Malfunctions ..... _____<br>c. Quality Assurance Calibration ..... _____<br>d. Other Known Causes ..... _____<br>e. Unknown Causes ..... _____<br>2. Total CMS Downtime..... _____<br>3. $\frac{[\text{Total CMS Downtime}]}{[\text{Total source operating time}]} \times (100\%) \dots\dots$ _____<br><br><i>If monitor availability is not at least 95%, provide a report identifying the problems in achieving 95% availability and a plan of corrective actions that will be taken to achieve 95% availability</i> |                               |
| <b>Emissions Data Exclusion</b><br>1. Report the number of 1-hour emissions averages excluded the reporting period due to:<br>a. Startup ..... _____<br>b. Shutdown..... _____<br>c. Malfunction ..... _____<br>d. Total..... _____<br>2. On a separate page, summarize each malfunction event, the cause (if known), and corrective actions taken.<br>3. On a separate page, describe any changes to CMS, process or controls during last quarter.   |  |   |                               |

# Memorandum

# Florida Department of Environmental Protection

TO: Howard Rhodes  
THRU: Clair Fancy *copy for CHF*  
Al Linero *Albin 1/30*  
FROM: Jeff Koerner *JK*  
DATE: January 30, 2002  
SUBJECT: Air Permit No. PSD-FL-196M  
Project No. 0990332-014-AC  
New Hope Power Partnership - Okeelanta Cogeneration Plant  
Palm Beach County

The final permit for this project is attached for your approval and signature. New Hope Power Partnership owns and operates the Okeelanta Cogeneration Plant located adjacent to Okeelanta Corporation's sugar mill and refinery, which is approximately six miles south of South Bay and off of U.S. Highway 27 in Palm Beach County. The cogeneration plant was previously owned and operated by the Okeelanta Power Limited Partnership. This permit modification: revises emissions limiting and monitoring provisions for emissions of carbon monoxide, fluorides, lead, mercury, sulfur dioxide, and sulfuric acid mist; removes the authority to fire low sulfur coal as a backup fuel; and removes the requirement to conduct stack testing for chromium, copper and arsenic. In addition, this modification updates the permit format and incorporates all previous permit modifications into a single document.

The Department distributed an "Intent to Issue Permit" package on December 20, 2001. The applicant published the "Public Notice of Intent to Issue" in The Palm Beach Post on December 29, 2001. The Department received proof of publication on January 7, 2002. No requests for administrative hearings were filed.

Day #90 is April 9, 2002. I recommend your approval of the attached Final Permit for this project.

Attachments

HLR/CHF/AAL/jfk

*Howard - Nothing  
big here. Removes  
unnecessary tests,  
revises CO limits.  
Also removes coal firing  
with their consent.  
They did not build  
coal handling facilities.  
al*

**SENDER: COMPLETE THIS SECTION**

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Rodney Williams  
 Plant Manager  
 New Hope Power Partnership  
 Okeelanta Cogeneration Plant  
 PO Box 9  
 South Bay, FL 33493

2. Article Number (Copy from service label)

7000 2870 0000 7028 3246

PS Form 3811, July 1999

**COMPLETE THIS SECTION ON DELIVERY**

A. Received by (Please Print Clearly) *D. McPherson* B. Date of Delivery *2-4-02*

C. Signature *D. McPherson*  Agent  Addressee

D. Is delivery address different from item 1?  Yes  No  
 If YES, enter delivery address below:

3. Service Type  
 Certified Mail  Express Mail  
 Registered  Return Receipt for Merchandise  
 Insured Mail  C.O.D.

4. Restricted Delivery? (Extra Fee)  Yes

Domestic Return Receipt

102595-99-M-1789

**U.S. Postal Service  
 CERTIFIED MAIL RECEIPT  
 (Domestic Mail Only; No Insurance Coverage Provided)**

7000 2870 0000 7028 3246

|   |           |
|---|-----------|
| Postage   | \$        |
| Certified Fee                                     |           |
| Return Receipt Fee<br>(Endorsement Required)      |           |
| Restricted Delivery Fee<br>(Endorsement Required) |           |
| <b>Total Postage &amp; Fees</b>                   | <b>\$</b> |

Postmark  
 Here

Sent To  
 Rodney Williams  
 Street, Apt. No., or PO Box No.  
 P. O. Box 9  
 City, State, ZIP+4  
 South Bay, FL 33493

PS Form 3800, May 2000 See Reverse for Instructions

**Golder Associates Inc.**

6241 NW 23rd Street, Suite 500  
Gainesville, FL 32653-1500  
Telephone (352) 336-5600  
Fax (352) 336-6603



RECEIVED

0037584

January 21, 2002

JAN 24 2002

Florida Department of Environmental Protection  
Bureau of Air Regulation  
2600 Blair Stone Road  
Tallahassee, FL 32399-2400

BUREAU OF AIR REGULATION

Attention: Mr. Al Linero, P.E., Administrator

RE: NEW HOPE POWER PARTNERSHIP  
OKEELANTA COGENERATION FACILITY  
ARMS FACILITY ID NO. 0990332  
PROJECT NO. 0990332-014-AC/PSD-FL-196M  
APPLICATION TO MODIFY CO AND SO<sub>2</sub> EMISSIONS STANDARDS

Dear Mr. Linero:

New Hope Power Partnership (NHPP) has received the Department's draft permit for the Okeelanta Cogeneration Facility dated December 20, 2001. NHPP and its consultant, Golder Associates Inc. (Golder), has reviewed the draft permit and have developed some minor comments as a result of this review. These comments are provided below.

**Technical Evaluation and Preliminary Determination**

Page 6 – Table 4A: The future actual emissions of SO<sub>2</sub> should be shown as 345.0 TPY, and for SAM as 20.7 TPY. This will also change the "Net Change" column. Also, the value shown under the "PSD SER TPY" column should be revised to "7".

Page 10 – 7. Sulfur Dioxide (SO<sub>2</sub>) Emissions, 2<sup>nd</sup> paragraph, line 10: change "form 1154 to 402" to "from 1154 to 345".

Page 14 – 11. Lead Emissions: It was requested that the permittee be allowed to average the lead test results from all three boilers to demonstrate compliance with the 1.5E-04 lb/MMBtu limit. This was requested due to the extremely low levels of these standards, and the variability in the results because of these low levels. This request was not addressed in the TE&PD.

page 15 – 12. Mercury Emissions: It was requested that the permittee be allowed to average the mercury test results from all three boilers to demonstrate compliance with the 5.4E-06 lb/MMBtu limit. This was requested due to the extremely low levels of these standards, and the variability in the results because of these low levels. This request was not addressed in the TE&PD.

**Draft Permit**

Page 5, Construction Details

5. NHPP has completed installation of the natural gas burners on two of the cogen boilers. Each boiler has a total of four burners, one located in each corner of the boiler. The total heat input rating

for all four burners is 400 MMBtu/hr (this is lower than the 600 MMBtu/hr that was in the permit application). Natural gas burners will be installed in the third cogen boiler in an identical fashion.

Page 7, 11.a: The Methods 3050/6010 stated are EPA Method SW-846 methods. It is unknown if they are also ASTM methods.

Page 11, 19.d: The last sentence of this condition requires annual emissions for each event per year. Annual emissions cannot be provided on a per event basis. It should be revised to require annual emissions for **all such** events per year.

Page D-1, Final BACT Determination: Under Sulfur Dioxide, the 24-hour average is referred to as a "block" average. This should be a "rolling" average.

Page E-1, Continuous Monitor Requirements: 1.b – Biomass feed rates are determined directly by weigh scales on the conveyor belts, not by fuel heating values. In addition, the current Title V permit, under "Compliance Demonstrations and Periodic Monitoring" for the cogen boilers, requires that:


The permittee shall continuously monitor the fuel input rate based on the fuel flow monitors calculating the maximum heat input rate (24 hour average) for each fuel during each day of operation. (see condition I.12.b of the Title V permit)

We request that the construction permit condition be revised to reflect this same level of monitoring. Requiring tracking of hourly heat input values would be very onerous.

Thank you for your consideration of these comments in issuing the final permit. Please call if you have any questions.

Sincerely,

GOLDER ASSOCIATES INC.

  
David A. Buff, P.E., Q.E.P.  
Principal Engineer  
Florida P.E. #19011

DB/jkw

cc: Gus Cepero  
James Meriwether  
David Dee  
Bill Tarr

**NEW HOPE POWER PARTNERSHIP  
OKEELANTA COGENERATION PLANT  
P.O. BOX 9  
8001 HWY 27 S.  
SOUTH BAY, FLORIDA 33493  
OFFICE (561) 993-1000 FAX (561) 992-7744**

**RECEIVED**

**JAN 07 2002**

**BUREAU OF AIR REGULATION**

January 3, 2002

Department of Environmental Protection  
New Source Review Section  
Twin Towers Office Building  
2600 Blair Stone Road, MS #5505  
Tallahassee, Florida 32399-2400

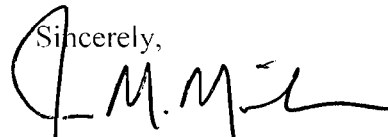
Attn: Jeffrey Koerner

Re: Proof of Publication  
New Hope Power Partnership  
Okeelanta Cogeneration Plant

Dear Mr. Koerner:

Attached is the Proof of Publication from The Palm Beach Post certifying that The Public Notice of Intent to Issue PSD Air Permit Modification, Project No. 0990332-014-AC, Draft Permit PSD-FL-196M, was published on December 29, 2001. If you have any questions please contact me at (561) 993-1003.

Sincerely,



James M. Meriwether  
Environmental and Safety Manager

cc: Bill Tarr

David Dee

*C. Halladay ✓*  
*J. Stormer, PB Coowner ✓*  
*D. Kavulis, SO ✓*  
*B. Woods, EPA ✓*  
*J. Bengeal, WPS ✓*

# THE PALM BEACH POST


Published Daily and Sunday  
West Palm Beach, Palm Beach County, Florida

## PROOF OF PUBLICATION

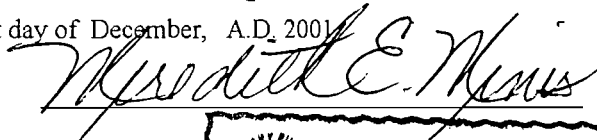
STATE OF FLORIDA  
COUNTY OF PALM BEACH

Before the undersigned authority personally appeared **Linda Goings**, who on oath says that she is **Classified Advertising Manager, Real Estate** of The Palm Beach Post, a daily and Sunday newspaper published at West Palm Beach in Palm Beach County, Florida; that the attached copy of advertising, being **Notice** in the matter **Intent to Issue** established in said newspaper in the issues **December 29, 2001**

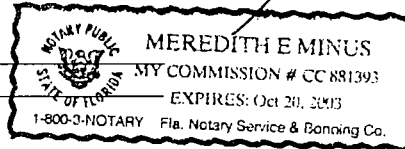
Affiant further says that the said The Post is a newspaper published at West Palm Beach, in said Palm Beach County, Florida, and that the said newspaper has heretofore been continuously published in said Palm Beach County, Florida, daily and Sunday and has been entered as second class mail matter at the post office in West Palm Beach, in said Palm Beach County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that she/he has neither paid nor promised any person, firm or corporation any discount rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

  
\_\_\_\_\_

Sworn to and subscribed before this 31st day of December, A.D. 2001

  
\_\_\_\_\_

Personally known XX or Produced Identification \_\_\_\_\_  
Type of Identification Produced \_\_\_\_\_



NO. 5929705  
PUBLIC NOTICE OF INTENT  
TO ISSUE PSD AIR  
CONSTRUCTION PERMIT  
MODIFICATION  
STATE OF FLORIDA  
DEPARTMENT  
OF ENVIRONMENTAL  
PROTECTION

Project No. 0990332-014-AC  
Draft Permit PSD-FL-196M  
New Hope Power Partnership -  
Okeelanta

Cogeneration Plant  
The Department of Environmental Protection (Department) gives an air construction permit modification to the applicant, New Hope Power Partnership. The applicant operates an existing cogeneration plant that is located approximately six miles south of South Bay on U.S. Highway 27 in Palm Beach County, Florida. The Okeelanta Cogeneration Plant's authorized representative is Mr. Rodney Williams, Plant Manager, and the mailing address is 8001 U.S. Highway 27 South, South Bay, FL 33493.

Based on the applicant's requests, the draft permit includes changes to the current emissions standards and monitoring requirements for carbon monoxide, sulfur dioxide, sulfuric acid mist, beryllium, fluoride, lead, and mercury. The proposed changes represent better information now available for biomass fuel, which consists of bagasse from the adjacent sugar mill and wood material from the surrounding areas. In addition, coal will be removed as an authorized fuel.

The cogeneration boilers are considered utility steam electrical generating units. As such, the applicant predicts that future actual emissions from this project will not result in actual emissions increases for beryllium, fluorides, lead or mercury that would exceed the PSD significant emission rates. The project does represent potential significant emissions increases of the following pollutants: carbon monoxide (486 tons per year), sulfuric acid mist (27 tons per year), and sulfur dioxide (486 tons per year). However, it is noted that potential allowable emissions will remain the same for carbon monoxide; will be reduced from 35 to 21 tons per year for sulfuric acid mist; and will be reduced from 1154 to 345 tons per year for sulfur dioxide. The reductions are due to the absence of coal firing. Therefore, in accordance with Rule 62-212.400, F.A.C., the project is subject to PSD review for carbon monoxide, sulfuric acid mist, and sulfur dioxide.

The cogeneration boilers are fired primarily with wood materials and bagasse to provide steam for the adjacent sugar mill and refinery as well as the electrical power grid. Auxiliary fuels are restricted to natural gas and very low sulfur distillate oil. The Department made the following determinations of the Best Available Control Technology (BACT) for this project. For emissions of sulfuric acid mist and sulfur dioxide, BACT was determined to be the firing of these very low sulfur fuels. For emissions of carbon monoxide, BACT was determined to be efficient combustion combined with good operating practices. The BACT standards for beryllium emissions were removed because beryllium is no longer subject to PSD review and because the primary source of beryllium was coal, which is no longer an authorized fuel. BACT for fluorides was also revised because the primary

source of fluorides was coal, which is no longer an authorized fuel. The draft permit also includes several miscellaneous changes to clarify the testing and monitoring requirements and updates the permit for previous modifications.

The Department reviewed the applicant's air quality analysis performed for carbon monoxide and sulfur dioxide. Emissions from the facility will not significantly contribute to or cause a violation of any state or federal ambient air quality standards. The maximum predicted PSD Class II sulfur dioxide (SO<sub>2</sub>) increment consumed by all sources in the area, including this project, will be as follows:

| Pollutant                                      |  |
|--|--|
| SO <sub>2</sub>                                |  |
| Averaging Period                               |  |
| 3-hour   |  |
| 24-hour  |  |
| Annual   |  |
| Maximum Predicted Impacts (ug/m <sup>3</sup> ) |  |
| 54   |  |
| 12   |  |
| 0  |  |
| PSD Class II Increment (ug/m <sup>3</sup> )    |  |
| 512  |  |
| 91   |  |
| 20   |  |
| Percent of Increment                           |  |
| 11%  |  |
| 13%  |  |
| 0%   |  |

The Everglades National Park is the nearest PSD Class I area to the project. The maximum 24-hour SO<sub>2</sub> increment in the Everglades National Park consumed by all sources, including this project, is predicted to be 3.5 ug/m<sup>3</sup>, which represents 70% of the allowable PSD Class I increment of 5 ug/m<sup>3</sup>.

The Department will issue the Final Permit with the proposed conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions. The Department will accept written comments and requests for public meetings concerning the proposed permit issuance action for a period of thirty (30) days from the date of publication of this Public Notice of Intent to Issue Air Construction Permit. Written comments and requests for public meetings should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57, F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Mediation is not available in this proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen (14) days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under Section 120.60(3), F.S. must be filed within fourteen (14) days of publication of the public notice or within fourteen (14) days of receipt of this notice of intent, whichever occurs first. Under Section 120.60(3), F.S., however, any person who asked the Department for notice of agency action may file a

petition within fourteen (14) days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

A petition that disputes the material facts upon which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) the name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

A complete project file is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:  
Dept. of Environmental Protection  
Bureau of Air Regulation  
New Source Review Section  
Suite 4, 111 S. Magnolia Drive  
Tallahassee, Florida 32301  
Telephone: 850/488-0114  
Dept. of Environmental Protection  
South District Office  
Air Resources Section  
2295 Victoria Avenue,  
Suite 364  
Fort Myers, Florida  
33901-3381  
Telephone: 941/332-6975  
Palm Beach County  
Health Dept.  
Environmental Health and Engineering/Air Pollution Control Section  
901 Evernia Street  
West Palm Beach,  
Florida 33401  
Telephone: 561/355-3136

The complete project file includes the application, Technical Evaluation and Preliminary Determination, Draft Permit, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Department's project engineer for additional information at the address and phone numbers listed above.

PUB: The Palm Beach Post  
December 29, 2001



# Memorandum

# Florida Department of Environmental Protection

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TO: Clair Fancy, Chief, BAR *copy for CHF*  
THROUGH: Al Linero, Administrator - New Source Review Section *copy 12/20*  
FROM: Jeff Koerner, New Source Review Section *JK*  
DATE: December 20, 2001  
SUBJECT: Project No. 0990332-014-AC  
Draft Air Permit No. PSD-FL-196M  
New Hope Power Partnershp - Okeelanta Cogeneration Plant  
Revised PSD Air Permit

Attached for your review are the following items:

- Intent to Issue Permit and Public Notice Package;
- Technical Evaluation and Preliminary Determination;
- Draft Permit; and
- PE Certification

The Technical Evaluation and Preliminary Determination provides a detailed description of the project, the rule applicability, and the BACT determinations. The P.E. certification briefly summarizes proposed project and BACT determinations. On October 23, 2001, the applicant waived the 90 day time clock requirements to submit a revised application. This project is nearly 12 months old because of numerous delays due to requests for supporting documentation based on CEMS data and modeling issues. Day #74 is February 21, 2002. I recommend your approval of the attached Draft Permit for this project.

CHF/AAL/jfk

Attachments

P.E. CERTIFICATION STATEMENT

PERMITTEE

New Hope Power Partnership  
Okeelanta Cogeneration Plant  
8001 U.S. Highway 27 South  
South Bay, FL 33493

Project No. 0990332-014-AC  
Draft Permit No. PSD-FL-196M  
Facility ID No. 0990332  
SIC Nos. 2061, 2062, and 4911

PROJECT DESCRIPTION

New Hope Power Partnership operates the 74.9 net MW Okeelanta Cogeneration Plant adjacent to Okeelanta Corporation's sugar mill that is approximately six miles south of South Bay and off of U.S. Highway 27 in Palm Beach County, Florida. The original PSD permit established BACT standards for emissions of beryllium (Be), fluorides (F1), sulfuric acid mist (SAM), and sulfur dioxide (SO2). Emissions of other regulated pollutants netted out of PSD based on emissions decreases from the shutdown of existing boilers at the adjacent sugar mill. The currently proposed project requires BACT determinations for emissions of carbon monoxide (CO), fluorides (F1), sulfuric acid mist (SAM), and sulfur dioxide (SO2). Based on the applicant's requests, the following proposed changes were made to the original PSD permit.

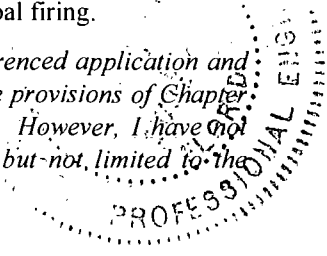
- Coal was removed as an authorized fuel. All annual emissions were revised accordingly.
- The 30-day CO standard of 0.35 lb/MMBtu was revised to 0.50 lb/MMBtu. The draft permit also establishes a 12-month standard of 0.35 lb/MMBtu. These are both BACT standards.
- The 24-hour SO2 standard of 0.10 lb/MMBtu was removed. The 30-day standards for bagasse (0.02 lb/MMBtu) and wood (0.05 lb/MMBtu) were revised to 0.10 lb/MMBtu for firing any authorized fuel. A 12-month standard of 0.06 lb/MMBtu was established. These are both BACT standards.
- The sulfuric acid mist emission (SAM) standard was removed. A revised BACT determination requires minimizing SO2 emissions by firing low sulfur fuels to effectively limit potential SAM emissions.
- A revised BACT requires fluoride emissions to be minimized by firing biomass as the primary fuel with natural gas and very low sulfur distillate oil as supplemental fuels. The fluoride emission standards for coal and oil firing were removed.
- The beryllium standard was removed because beryllium is no longer a PSD-regulated pollutant.
- The separate lead emission standards for firing oil, bagasse, and wood were removed and replaced with a standard of 1.5 x 10<sup>-04</sup> lb/MMBtu for firing any authorized fuel. No BACT determination was required.
- The separate mercury emission standards for firing oil, bagasse, and wood were removed and replaced with a standard of 5.43 x 10<sup>-06</sup> lb/MMBtu for firing any authorized fuel. The permit includes conditions to reactivate the carbon injection system should mercury emission increase. No BACT determination was required.
- Changes regarding the testing requirements clarify that: compliance for CO, NOx, and SO2 is by CEMS and not an annual stack test; either COMS data or an EPA Method 9 observation may be used to show compliance with the opacity standard; and testing requirements for arsenic, copper, and chromium emissions were removed and replaced with specific sampling, analysis, and acceptance criteria for these contaminants in the wood materials fired as biomass fuel.

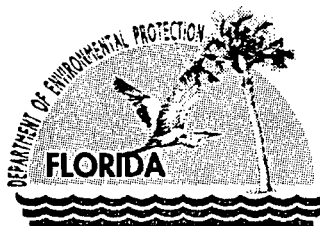
The changes result in the following decreases in allowable annual emissions: CO will remain at 2012.50 tons per year; fluorides will be reduced from 21.2 to 4.03 tons per year; SAM will be reduced from 34.6 to 20.7 tons per year; and SO2 will be reduced from 1154.3 to 345.0 tons per year. A revised ambient impact analysis was performed for CO because CEMS data indicated brief periods of elevated CO emissions. The analysis showed no adverse impacts resulting from these periods. A revised SO2 air quality analysis indicated no adverse impacts from the revised emissions standards. CEMS data indicates that the highest actual SO2 emission rates are approximately one-fourth of the previously modeled rate for coal firing.

*I HEREBY CERTIFY that the air pollution control engineering features described in the above referenced application and subject to the proposed permit conditions provide reasonable assurance of compliance with applicable provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 62-4 and 62-204 through 62-297. However, I have not evaluated and I do not certify aspects of the proposal outside of my area of expertise (including but not limited to the electrical, mechanical, structural, hydrological, and geological features).*

*Jeffery F. Koerner*  
Jeffery F. Koerner, P.E.  
Registration Number: 49441

12-20-01  
(Date)





# Department of Environmental Protection

Jeb Bush  
Governor

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

David B. Struhs  
Secretary

December 20, 2001

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Rodney Williams, Plant Manager  
Okeelanta Cogeneration Plant  
8001 U.S. Highway 27 South  
South Bay, FL 33493

Re: Project No. 0990332-014-AC  
Draft Permit No. PSD-FL-196M  
Okeelanta Cogeneration Plant  
Revised PSD Permit

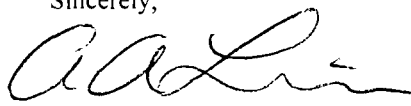
Dear Mr. Williams:

Enclosed is one copy of the draft to revise air permit No. PSD-FL-196 for the existing cogeneration plant located approximately six miles south of South Bay on U.S. Highway 27 in Palm Beach County, Florida. The Department's "Technical Evaluation and Preliminary Determination", "Intent to Issue Permit", and the "Public Notice of Intent to Issue Permit" are also included.

The "Public Notice of Intent to Issue Permit" must be published one time only, as soon as possible, in the legal advertisement section of a newspaper of general circulation in the area affected, pursuant to the requirements Chapter 50, Florida Statutes. Proof of publication, i.e., newspaper affidavit, must be provided to the Department's Bureau of Air Regulation office within seven days of publication. Failure to publish the notice and provide proof of publication may result in the denial of the permit.

Please submit any written comments you wish to have considered concerning the Department's proposed action to Al Linero, Administrator of the New Source Review Section, at the above letterhead address. If you have any other questions, please contact Jeff Koerner at 850/921-9536.

Sincerely,

  
for C. H. Fancy, P.E., Chief  
Bureau of Air Regulation

CHF/AAL/jfk

Enclosures

"More Protection, Less Process"

Printed on recycled paper.

## INTENT TO ISSUE AIR CONSTRUCTION PERMIT

In the Matter of an  
Application for Air Permit by:

New Hope Power Partnership  
Okeelanta Cogeneration Plant  
8001 U.S. Highway 27 South  
South Bay, FL 33493

Project No. 0990332-014-AC  
Draft Permit No. PSD-FL-196M  
Okeelanta Cogeneration Plant  
Palm Beach County, Florida

*Authorized Representative:*

Mr. Rodney Williams, Plant Manager

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit modification (copy of draft permit attached) for the proposed project as detailed in the application and the enclosed Technical Evaluation and Preliminary Determination, for the reasons stated below. The applicant, New Hope Power Partnership, applied on January 2, 2001 to the Department for an air construction permit to revise several of the emissions standards and testing requirements as well as update the original permit for all previous changes. The cogeneration plant is located approximately six miles south of South Bay on U.S. Highway 27 in Palm Beach County, Florida.

The Department has permitting jurisdiction under the provisions of Chapter 403 of the Florida Statutes (F.S.), and Chapters 62-4, 62-210, and 62-212 of the Florida Administrative Code (F.A.C.). The above actions are not exempt from permitting procedures. The Department has determined that an air construction permit modification is required to perform proposed work. The Department intends to issue this air construction permit modification based on the belief that the applicant has provided reasonable assurances to indicate that operation of these emission units will not adversely impact air quality, and the emission units will comply with all appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297, F.A.C.

Pursuant to Section 403.815, F.S., and Rule 62-110.106(7)(a)1, F.A.C., you (the applicant) are required to publish at your own expense the enclosed Public Notice of Intent to Issue Air Construction Permit Modification. The notice shall be published one time only in the legal advertisement section of a newspaper of general circulation in the area affected. Rule 62-110.106(7)(b), F.A.C., requires that the applicant cause the notice to be published as soon as possible after notification by the Department of its intended action. For the purpose of these rules, "publication in a newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. If you are uncertain that a newspaper meets these requirements, please contact the Department at the address or telephone number listed below. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400 (Telephone: 850/488-0114 / Fax 850/ 922-6979). You must provide proof of publication within seven days of publication, pursuant to Rule 62-110.106(5), F.A.C. No permitting action for which published notice is required shall be granted until proof of publication of notice is made by furnishing a uniform affidavit in substantially the form prescribed in Section 50.051, F.S. to the office of the Department issuing the permit. Failure to publish the notice and provide proof of publication may result in the denial of the permit pursuant to Rules 62-110.106(9) and (11), F.A.C.

The Department will issue the final permit with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments and requests for public meetings concerning the proposed permit issuance action for a period of thirty (30) days from the date of publication of Public Notice of Intent to Issue Air Permit. Written comments and requests for public meetings should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen (14) days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under Section 120.60(3), F.S. must be filed within fourteen (14) days of publication of the public notice or within fourteen (14) days of receipt of this notice of intent, whichever occurs first. Under Section 120.60(3), F.S. however, any person who asked the Department for notice of agency action may file a petition within fourteen (14) days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.


In addition to the above, a person subject to regulation has a right to apply for a variance from or waiver of the requirements of particular rules, on certain conditions, under Section 120.542, F.S. The relief provided by this state statute applies only to state rules, not statutes, and not to any federal regulatory requirements. Mediation is not available in this proceeding. Applying for a variance or waiver does not substitute or extend the time for filing a petition for an administrative hearing or exercising any other right that a person may have in relation to the action proposed in this notice of intent.

The application for a variance or waiver is made by filing a petition with the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. The petition must specify the following information: (a) The name, address, and telephone number of the petitioner; (b) The name, address, and telephone number of the attorney or qualified representative of the petitioner, if any; (c) Each rule or portion of a rule from which a variance or waiver is requested; (d) The citation to the statute underlying (implemented by) the rule identified in (c) above; (e) The type of action requested; (f) The specific facts that would justify a variance or waiver for the petitioner; (g) The reason why the variance or waiver would serve the purposes of the underlying statute (implemented by the rule); and (h) A statement whether the variance or waiver is permanent or temporary and, if temporary, a statement of the dates showing the duration of the variance or waiver requested.

The Department will grant a variance or waiver when the petition demonstrates both that the application of the rule would create a substantial hardship or violate principles of fairness, as each of those terms is defined in Section 120.542(2), F.S., and that the purpose of the underlying statute will be or has been achieved by other means by the petitioner.

Persons subject to regulation pursuant to any federally delegated or approved air program should be aware that Florida is specifically not authorized to issue variances or waivers from any requirements of any such federally delegated or approved program. The requirements of the program remain fully enforceable by the Administrator of the EPA and by any person under the Clean Air Act unless and until the Administrator separately approves any variance or waiver in accordance with the procedures of the federal program.

Executed in Tallahassee, Florida.

  
for C. H. Fancy, P.E., Chief  
Bureau of Air Regulation

#### CERTIFICATE OF SERVICE

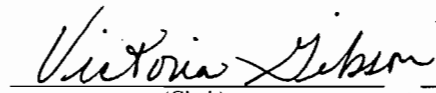
The undersigned duly designated deputy agency clerk hereby certifies that this Intent to Issue Air Construction Permit package (including the Public Notice of Intent to Issue Air Construction Permit Modification, Technical Evaluation and Preliminary Determination, and the Draft Permit) was sent by certified mail (\*) and copies were mailed by U.S. Mail before the close of business on 12/20/01 to the persons listed:

Mr. Rodney Williams, Plant Manager\*  
Mr. James Meriwether, Okeelanta  
Mr. Matthew Capone, Okeelanta  
Mr. David Buff, Golder Associates

Mr. James Stormer, PBCHD  
Mr. Ron Blackburn, SED  
Mr. Gregg Worley, EPA Region 4  
Mr. John Bunyak, NPS

Clerk Stamp

**FILED AND ACKNOWLEDGMENT FILED**, on this date, pursuant to §120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

  
(Clerk) 12/20/01  
(Date)

**PUBLIC NOTICE OF INTENT TO ISSUE PSD AIR CONSTRUCTION PERMIT MODIFICATION**

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Project No. 0990332-014-AC  
Draft Permit PSD-FL-196M

New Hope Power Partnership – Okeelanta Cogeneration Plant

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit modification to the applicant, New Hope Power Partnership. The applicant operates an existing cogeneration plant that is located approximately six miles south of South Bay on U.S. Highway 27 in Palm Beach County, Florida. The Okeelanta Cogeneration Plant’s authorized representative is Mr. Rodney Williams, Plant Manager, and the mailing address is 8001 U.S. Highway 27 South, South Bay, FL 33493.

Based on the applicant’s requests, the draft permit includes changes to the current emissions standards and monitoring requirements for carbon monoxide, sulfur dioxide, sulfuric acid mist, beryllium, fluoride, lead, and mercury. The proposed changes represent better information now available for biomass fuel, which consists of bagasse from the adjacent sugar mill and wood material from the surrounding areas. In addition, coal will be removed as an authorized fuel.

The cogeneration boilers are considered utility steam electrical generating units. As such, the applicant predicts that future actual emissions from this project will not result in actual emissions increases for beryllium, fluorides, lead or mercury that would exceed the PSD significant emission rates. The project does represent potential significant net emissions increases of the following pollutants: carbon monoxide (486 tons per year), sulfuric acid mist (27 tons per year), and sulfur dioxide (486 tons per year). However, it is noted that potential *allowable* emissions will: remain the same for carbon monoxide; will be reduced from 35 to 21 tons per year for sulfuric acid mist; and will be reduced from 1154 to 345 tons per year for sulfur dioxide. The reductions are due to the absence of coal firing. Therefore, in accordance with Rule 62-212.400, F.A.C., the project is subject to PSD review for carbon monoxide, sulfuric acid mist, and sulfur dioxide.

The cogeneration boilers are fired primarily with wood materials and bagasse to provide steam for the adjacent sugar mill and refinery as well as generate electricity for sale to the electrical power grid. Auxiliary fuels are restricted to natural gas and very low sulfur distillate oil. The Department made the following determinations of the Best Available Control Technology (BACT) for this project. For emissions of sulfuric acid mist and sulfur dioxide, BACT was determined to be the firing of these very low sulfur fuels. For emissions of carbon monoxide, BACT was determined to be efficient combustion combined with good operating practices. The BACT standards for beryllium emissions were removed because beryllium is no longer subject to PSD review and because the primary source of beryllium was coal, which is no longer an authorized fuel. BACT for fluorides was also revised because the primary source of fluorides was coal, which is no longer an authorized fuel. The draft permit also includes several miscellaneous changes to clarify the testing and monitoring requirements and updates the permit for previous modifications.

The Department reviewed the applicant’s air quality analysis performed for carbon monoxide and sulfur dioxide. Emissions from the facility will not significantly contribute to or cause a violation of any state or federal ambient air quality standards. The maximum predicted PSD Class II sulfur dioxide (SO<sub>2</sub>) increment consumed by all sources in the area, including this project, will be as follows:

| Pollutant       | Averaging Period | Maximum Predicted Impacts (µg/m <sup>3</sup> ) | PSD Class II Increment (µg/m <sup>3</sup> ) | Percent Of Increment |
|-----------------|------------------|--|---|----------------------|
| SO <sub>2</sub> | 3-hour           | 54   | 512   | 11%                  |
|                 | 24-hour          | 12   | 91  | 13%                  |
|                 | Annual           | 0  | 20  | 0%                   |

The Everglades National Park is the nearest PSD Class I area to the project. The maximum 24-hour SO<sub>2</sub> increment in the Everglades National Park consumed by all sources, including this project, is predicted to be 3.5 µg/m<sup>3</sup>, which represents 70% of the allowable PSD Class I increment of 5 µg/m<sup>3</sup>.

The Department will issue the Final Permit with the proposed conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions. The Department will

**NOTICE TO BE PUBLISHED IN THE NEWSPAPER**

accept written comments and requests for public meetings concerning the proposed permit issuance action for a period of thirty (30) days from the date of publication of this Public Notice of Intent to Issue Air Construction Permit. Written comments and requests for public meetings should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57, F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Mediation is not available in this proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen (14) days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under Section 120.60(3), F.S. must be filed within fourteen (14) days of publication of the public notice or within fourteen (14) days of receipt of this notice of intent, whichever occurs first. Under Section 120.60(3), F.S., however, any person who asked the Department for notice of agency action may file a petition within fourteen (14) days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

A complete project file is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

|                                   |                                   |                                      |
|-----------------------------------|-----------------------------------|--------------------------------------|
| Dept. of Environmental Protection | Dept. of Environmental Protection | Palm Beach County Health Dept.       |
| Bureau of Air Regulation          | South District Office             | Environmental Health and Engineering |
| New Source Review Section         | Air Resources Section             | Air Pollution Control Section        |
| Suite 4, 111 S. Magnolia Drive    | 2295 Victoria Avenue, Suite 364   | 901 Evernia Street                   |
| Tallahassee, Florida 32301        | Fort Myers, Florida 33901-3381    | West Palm Beach, Florida 33401       |
| Telephone: 850/488-0114           | Telephone: 941/332-6975           | Telephone: 561/355-3136              |

The complete project file includes the application, Technical Evaluation and Preliminary Determination, Draft Permit, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Department's project engineer for additional information at the address and phone numbers listed above.

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**TECHNICAL EVALUATION  
&  
PRELIMINARY DETERMINATIONS**

**PROJECT**

Project No. 0990332-014-AC  
Draft Permit No. PSD-FL-196M  
CO/SO<sub>2</sub> Modification Request  
(Emissions Unit Nos. 001, 002, 003, and 004)

**COUNTY**

Palm Beach County

**APPLICANT**

New Hope Power Partnership / Okeelanta Corporation  
ARMS Facility ID Nos. 0990332 / 0990005  
Existing Cogeneration Plant / Sugar Mill and Refinery

**PERMITTING  
AUTHORITY**

Florida Department of Environmental Protection  
Division of Air Resources Management  
Bureau of Air Regulation  
New Source Review Section



December 20, 2001

*{Filename: PSD-FL-196M TEPD.doc}*

**1. APPLICATION INFORMATION**

**Applicant Name and Address**

New Hope Power Partnership  
 8001 U.S. Highway 27 South  
 South Bay, FL 33493

Authorized Representative: Mr. Rodney Williams, Plant Manager

**Processing Schedule**

- 01/02/01 Department received initial application.
- 01/25/01 Department requested additional information.
- 06/12/01 Department received additional information.
- 07/11/01 Department requested additional information.
- 08/15/01 Department received additional information; application complete.
- 10/23/01 Department received waiver of 90-day clock to consider revised application.
- 11/05/01 Department received revised application (BACT analyses for CO, SO<sub>2</sub>, and fluorides).
- 12/10/01 Department received SO<sub>2</sub> ambient impact analysis; revised application complete.

**Facility Description and Location**

New Hope Power Partnership operates the Okeelanta Cogeneration Plant (OkCP) located near Highway 27, approximately 6 miles south of South Bay in Palm Beach County, Florida. The UTM coordinates are Zone 17, 524.1 km E, 2940.1 km N. The plant consists of three biomass/fossil fuel-fired steam boilers with electrical generators designed to produce up to a total of 74.9 MW of net electrical power. The plant is adjacent to an existing sugar mill and refinery owned and operated by Okeelanta Corporation. For the purposes of the Department's Prevention of Significant Deterioration (PSD) and Title V permit programs, the two plants are considered to be a single facility. The plants are located in Palm Beach County, an area that is in attainment (or designated as unclassifiable) for all air pollutants subject to a National Ambient Air Quality Standard (NAAQS). The following table identifies the Standard Industrial Classification (SIC) code for each plant.

| Owner/Operator             | Plant                        | Standard Industrial Classification |
|----------------------------|------------------------------|------------------------------------|
| New Hope Power Partnership | Okeelanta Cogeneration Plant | 4911 - Electric Services           |
| Okeelanta Corporation      | Sugar Mill                   | 2061 - Cane Sugar, Except Refining |
|                            | Sugar Refinery               | 2062 - Cane Sugar Refining         |

**Regulatory Categories**

HAPs: Based on available data, the facility is a major source of hazardous air pollutants (Title III).

Acid Rain: Based on the Title V air operation permit, the facility is not subject to the acid rain provisions of the Clean Air Act (Title IV).

Title V: The facility is a Title V major source of air pollution because potential emissions of at least one regulated pollutant exceed 100 tons per year. Regulated pollutants include pollutants such as carbon monoxide (CO), nitrogen oxides (NO<sub>x</sub>), particulate matter (PM/PM<sub>10</sub>), sulfur dioxide (SO<sub>2</sub>), and volatile organic compounds (VOC).

PSD: The facility is located in an area that is in attainment with, or designated as unclassifiable for, each pollutant subject to a National Ambient Air Quality Standard. The cogeneration plant is classified as a fossil fuel-fired steam electric plant, which is one of the 28 PSD Major Facility Categories identified in Table 62-212.400-1, F.A.C. As such, the facility is "major" with respect to the Prevention of Significant Deterioration (PSD) of Air Quality (Rule 62-212.400, F.A.C.) because emissions are greater than 100 tons per year for at least one regulated pollutant. Therefore, new projects require a PSD applicability review.

## TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

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NSPS Sources: The cogeneration units are subject to the New Source Performance Standards in 40 CFR 60 for the fossil fuel fired steam generating units (Subpart Da) and the applicability and exemption criteria of Subpart Ea. The distillate oil tank is subject to the record keeping requirements of 40 CFR 60, Subpart Kb.

### 2. APPLICABLE REGULATIONS

#### State Regulations

This project is subject to the applicable environmental laws of Section 403 of the Florida Statutes (F.S.). The Florida Statutes authorize the Department of Environmental Protection to establish rules and regulations regarding air quality as part of the Florida Administrative Code (F.A.C.). This project is subject to the applicable rules and regulations of the following chapters.

| <u>Chapter</u> | <u>Description</u>   |
|----------------|--|
| 62-4           | Permitting Requirements  |
| 62-204         | Ambient Air Quality Requirements, PSD Increments, and Federal Regulations Adopted by Reference   |
| 62-210         | Required Permits, Public Notice and Comments, Reports, Stack Height Policy, Circumvention, Excess Emissions, Forms and Instructions,   |
| 62-212         | Preconstruction Review, PSD Requirements, and BACT Determinations<br>62-212.300 - General Preconstruction Review Requirements<br>62-212.400 - Prevention of Significant Deterioration of Air Quality   |
| 62-213         | Operation Permits for Major Sources of Air Pollution   |
| 62-296         | Emission Limiting Standards<br>62-296.405 - New Fossil Fuel Steam Generators with More Than 250 Million Btu Per Hour Heat Input.<br>62-296.410 - Carbonaceous Fuel Burning Equipment<br>62-296.500 - Reasonably Available Control Technology Requirements for VOC and NOx<br>62-296.570 - Reasonably Available Control Technology Requirements for Major VOC and NOx Sources |
| 62-297         | Test Methods and Procedures, Continuous Monitoring Specifications, and Alternate Sampling Procedures   |

#### Federal Regulations

This project is also subject to the applicable federal provisions regarding air quality as established by the EPA in the following sections of the Code of Federal Regulations (CFR).

| <u>Title 40, CFR</u> | <u>Description</u>  |
|----------------------|---|
| Section 51.166       | Requirements for State Implementation Plans, Prevention of Significant Deterioration  |
| Section 52.21        | Approval of State Implementation Plans, Prevention of Significant Deterioration   |
| Part 60              | Subpart A - General Provisions for NSPS Sources<br>Subpart Da - NSPS for Electric Utility Steam Generating Units, Constructed After September 18, 1978<br>Subpart Ea - NSPS for Municipal Waste Combustors, Applicability and Exemption Requirements<br>Subpart Kb - NSPS for Distillate Oil Storage Tank, Record Keeping Requirements<br>Applicable Appendices |

### 3. GENERAL PROJECT INFORMATION

#### History

Okeelanta Corporation owns and operates a sugar mill and refinery just south of South Bay in Palm Beach County, Florida. Sugarcane is harvested from nearby fields and transported to the mill by truck. In the mill, sugarcane is cut into small pieces and passed through a series of presses to squeeze juice from the cane. The cane juice undergoes clarification, separation, evaporation, and crystallization to produce raw, unrefined sugar. In the refinery, raw sugar is decolorized, concentrated, crystallized, dried, conditioned, screened, packaged, stored, and distributed as refined sugar. The fibrous byproduct remaining from the sugarcane is called bagasse

## TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

and is burned as boiler fuel to provide steam and heating requirements for the mill and refinery. The sugar mill boilers were a primary source of air pollution due to the older, less efficient design and aging equipment.

In 1993, the Department issued a PSD permit to Flo-Energy, Inc., an affiliate of Okeelanta Corporation, to construct a cogeneration plant adjacent to the sugar mill and refinery. The project included three new biomass-fired boilers to replace the existing sugar mill boilers. "Biomass" fuels include bagasse from the adjacent sugar mill and wood materials collected from nearby counties consisting of clean dry wood, yard trimmings, land clearing debris, and other vegetative matter. The cogeneration boilers would provide high-pressure steam to generate up to 74.9 net MW of electricity and deliver low-pressure steam to meet the needs of the sugar mill and refinery. The "renewable source" electricity would be sold under contract to the Florida Power & Light Company (FPL). The cogeneration facility is currently owned and operated by New Hope Power Partnership.

The new cogeneration boilers would minimize CO and VOC emissions by high temperature, thermally efficient combustion. Urea injection would be used to reduce NOx emissions through selective non-catalytic reduction (SNCR). An electrostatic precipitator would control particulate matter emissions. Activated carbon injection would be used to reduce mercury emissions expected from coal firing. Two-thirds of the annual heat input would be provided by bagasse with the remaining one-third provided from the wood materials. Low sulfur distillate oil would be used as a startup and supplemental fuel. Although coal was originally included as an emergency fuel in order to secure financial support for the project, Flo-Energy stated that it never intended to burn coal at this facility. No coal handling facilities were ever constructed or installed. As shown in the following table, OkCP used net emissions decreases from the shutdown of the sugar mill boilers to compensate for emissions increases from the new cogeneration boilers.

Table 3A. Original PSD Applicability Analysis for Cogeneration Plant

| Pollutant          | Baseline <sup>1</sup> , TPY | PSD Permit <sup>2</sup> , TPY | Net Change, TPY | PSD SER, TPY | PSD/BACT? <sup>3</sup> |
|--------------------|-----------------------------|-------------------------------|-----------------|--------------|------------------------|
| CO                 | 10388.0                     | 2012.5                        | -8376           | 100          | No                     |
| NOx                | 888.7                       | 862.5                         | -26             | 40           | No                     |
| PM (w/fugitives)   | (473.7)                     | 172.5 (177.3)                 | -301 (-297)     | 25           | No                     |
| PM10 (w/fugitives) | (426.3)                     | 172.5 (174.4)                 | -254 (-252)     | 15           | No                     |
| SO2                | 748.3                       | 1154.3                        | 406             | 40           | Yes                    |
| VOC                | 401.9                       | 345.0                         | -57             | 40           | No                     |
| Lead               | 0.280                       | 0.17                          | -0.11           | 0.600        | No                     |
| Mercury            | 0.026                       | 0.0300                        | 0.004           | 0.100        | No                     |
| Beryllium          | 0.0004                      | 0.0052                        | 0.0048          | 0.0004       | Yes                    |
| Fluorides          | 0.04                        | 21.20                         | 21              | 3            | Yes                    |
| Sulfuric Acid Mist | 22.40                       | 34.60                         | 12              | 7            | Yes                    |

Notes:

- Baseline annual emissions were based on the average emissions during the most recent 2 years of operation (1990/1991 and 1991/1992 crop seasons) and the best available data.
- The annual potential emissions are those specified in the original PSD permit [1]. Some changes have occurred since the original action. Annual emissions include potential emissions from firing low sulfur coal.
- The original PSD permit made BACT determinations for sulfuric acid mist, sulfur dioxide, beryllium, and fluorides.

The cogeneration plant was constructed over a three-year period and commenced initial startup and commercial operation in 1996. Initial emissions performance testing was completed in 1997. However, various difficulties with fuel handling systems, the steam interconnection with the sugar mill, and a legal dispute between OkCP and Florida Power & Light delayed full operation of the plant until the 1998/1999-sugarcane crop season. The initial problems and complications lead to several revisions of the PSD air construction permit as summarized below and in Attachment A of this report.

- Clarification of the types of wood materials that could be fired.

## TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

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- Several revisions to extend the “shake-down” period and allow continued operation of the sugar mill boilers.
- Authorization to perform testing while firing tire-derived fuel (expired).
- Revision of the SO<sub>2</sub> limits for bagasse and wood firing.
- Revision of the testing requirements for sulfuric acid mist emissions.
- Modification of the emissions standards for carbon monoxide, lead, and mercury.
- Clarification of the performance test schedule.
- Modification of the CO averaging period (24-hour to 30-day rolling average basis).
- Authorization to install particulate dust collectors prior to the electrostatic precipitators.
- Authorization to add pipeline-quality natural gas as a supplemental fuel.
- Clarification that the restriction on electrical generating capacity is “net” not “gross” generation.

### **Emissions Units Descriptions**

The cogeneration boilers are identified by the facility as Boiler A (EU-001), Boiler B (EU-002), and Boiler C (EU-003). Each cogeneration boiler is a spreader-stoker unit. Biomass fuel enters through the fuel chute and is spread across the furnace. Small particles of biomass fuel burn in suspension above the grate. Larger materials are spread in a thin, even bed along the moving grate. Combustion occurs in three stages within a single chamber: moisture evaporation, distillation and burning of volatile matter, and burning of fixed carbon. Natural gas and distillate oil may be fired for startup or as supplemental fuel to maintain constant steam production when the biomass moisture content is excessive or the biomass feed rate is interrupted.

Capacity: Each boiler has a design heat input rate of 715 MMBtu per hour from biomass fuels, 490 MMBtu per hour from distillate oil, and 605 MMBtu per hour from natural gas. Each boiler is designed to produce 455,418 pounds per hour of high-pressure steam at 1500 psig and 975° F. The cogeneration plant is limited to an annual heat input rate of  $11.5 \times 10^{+06}$  MMBtu per year and an hourly net electrical generating rate of 74.9 net MW.

Allowable Fuels: The cogeneration boilers fire biomass as the primary fuel and natural gas or very low sulfur distillate oil as startup and supplemental fuels. “Biomass” includes both wood materials and bagasse. Wood materials are collected from nearby counties and consist of clean construction and demolition wood debris, dry wood, yard trash, land clearing debris, and other clean cellulose and vegetative matter. Bagasse is received from the adjacent sugar mill and consists of the fibrous, vegetative residue remaining from sugarcane after the milling process. The biomass fuel shall not contain hazardous substances, hazardous wastes, biomedical wastes, garbage, or special wastes (except wood, lumber, trees, tree remains, bagasse, cane tops and leaves, and other clean cellulose and vegetative matter). Each boiler is limited to combusting no more than 30% by weight on a calendar quarter basis of yard waste (yard trash) that is defined as a municipal solid waste (MSW) in 40 CFR 60.51a. Fossil fuel firing is limited to less than 25% of the total permitted heat input on a calendar quarter basis.

Nitrogen Oxides Controls: Each boiler is equipped with a Thermal DeNO<sub>x</sub> system that injects urea into the exhaust gas stream to reduce NO<sub>x</sub> emissions via selective non-catalytic reduction (SNCR).

Particulate Matter Controls: The primary particulate control device for each boiler is an electrostatic precipitator manufactured by Research-Cottrell. Each boiler also has a multi-tube cyclone dust collector manufactured by Barron Industries to collect large particulate matter and prevent over loading the electrostatic precipitator. All conveyors and conveyor transfer points shall be enclosed to prevent fugitive particulate matter emissions (except those associated with the stackers/reclaimers). Water sprays or chemical wetting agents and stabilizers shall be applied to stockpiles, handling equipment, and unenclosed transfer points as necessary to minimize fugitive dust emissions.

Mercury Controls: Each unit is equipped with an activated carbon injection system designed to reduce mercury emissions (primarily installed for coal firing). The activated carbon storage silos are equipped with a negative pressure system to vent exhaust to a fabric filter during operation. Exhaust from the fabric filter shall not exceed 5% opacity.

## TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

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Monitoring Equipment: Each boiler is equipped with Continuous Emissions Monitoring Systems (CEMS) to monitor and record emissions of carbon monoxide, nitrogen oxides, opacity, and sulfur dioxide. The following parameters are also monitored and recorded for each unit: fuel feed rate, steam production, steam pressure, steam temperature, flue gas oxygen content and net electrical energy production.

Miscellaneous Equipment: Other equipment includes: a biomass feed system; biomass stockpiles; an ash handling and storage system; distillate oil storage tanks; boiler drums, cooling tower, diesel fire pump, steam turbine-electrical generator sets; steam condensers; cooling towers; exhaust fans; and exhaust stacks.

#### 4. PSD PRECONSTRUCTION REVIEW

##### General Applicability

The Department regulates major air pollution sources in accordance with Florida's Prevention of Significant Deterioration (PSD) program, as approved by the EPA in Florida's State Implementation Plan and defined in Rule 62-212.400, F.A.C. A PSD review is required only in areas currently in attainment with the National Ambient Air Quality Standard (AAQS) or areas designated as "unclassifiable" for a given pollutant. A facility is considered "major" with respect to PSD if it emits or has the potential to emit:

- 250 tons per year or more of any regulated air pollutant, or
- 100 tons per year or more of any regulated air pollutant and the facility belongs to one of the 28 PSD Major Facility Categories (Table 62-212.400-1, F.A.C.), or
- 5 tons per year of lead.

For new projects at PSD-major sources, each regulated pollutant is reviewed for PSD applicability based on emissions thresholds known as the Significant Emission Rates listed in Table 62-212.400-2, F.A.C. Pollutant emissions from the project exceeding these rates are considered "significant" and the applicant must employ the Best Available Control Technology (BACT) to minimize emissions of each such pollutant and evaluate the air quality impacts. Although a facility may be "major" with respect to PSD for only one regulated pollutant, it may be required to install BACT controls for several "significant" regulated pollutants

##### PSD Preconstruction Review

PSD preconstruction review consists of two parts. The first part requires an Air Quality Analysis consisting of: an air dispersion modeling analysis to predict ambient impacts from the project; a comparison of predicted ambient impacts from the project with National Ambient Air Quality Standards and PSD Increments; an evaluation of the air quality impacts from the project upon soils, vegetation, wildlife, and visibility; and an assessment of the air quality impacts resulting from associated commercial, residential, and industrial growth related to the proposed project. The purpose of the Air Quality Analysis is to determine whether or not the proposed project will have a significant impact on PSD Class I and Class II areas and determine whether or not emissions from the project contribute significantly to, or cause a violation of, any state or federal ambient air quality standards.

The second part requires the Department to establish the Best Available Control Technology (BACT) for each pollutant emitted in excess of the PSD Significant Emission Rates. The applicant reviews current control technologies and techniques for similar projects and proposes control options and emissions standards for the project. The Department reviews the information provided by the applicant with all other available information and makes a determination of the Best Available Control Technology (BACT) for each "significant" regulated pollutant. The BACT determination must be based on the maximum degree of emissions reduction that the Department determines is achievable through application of production processes and available methods, systems, and techniques for control of each such pollutant. The Department's determination is made on a case-by-case basis for each proposed project, taking into account energy, environmental and economic impacts. The Department must also give consideration to:

- Any EPA determination of BACT pursuant to Section 169 of the Clean Air Act, and any emission limitation contained in 40 CFR Part 60 (NSPS) or 40 CFR Part 61 (NESHAP).

## TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

- All scientific, engineering, and technical material and other information available to the Department.
- The emission limiting standards or BACT determinations of any other state.
- The social and economic impacts of the application of such technology.

The EPA currently directs that BACT should be determined using the “top-down” approach. In this approach, available control technologies are ranked in order of control effectiveness for the emissions unit under review. The most stringent control option is evaluated first and selected as BACT unless it is technically infeasible for the proposed project or rejected due to adverse energy, environmental or economic impacts. If the control option is eliminated, the next most stringent alternative is considered. This top-down approach continues until BACT is determined.

BACT determinations must result in the selection of control technologies capable of achieving at least the applicable emission standards regulated by 40 CFR Part 60 (NSPS) or 40 CFR Part 61 (NESHAP). The Department will consider the control or reduction of “non-regulated” air pollutants when determining the BACT limit for regulated pollutants, and will weigh control of non-regulated air pollutants favorably when considering control technologies for regulated pollutants. The Department will also favorably consider control technologies that utilize pollution prevention strategies. These approaches are consistent with EPA’s consideration of environmental impacts and stated policy for pollution prevention.

### PSD Applicability for Project

The facility is located in Palm Beach County, Florida, an area that is in attainment (or designated as unclassifiable) for all air pollutants subject to a National Ambient Air Quality Standard (NAAQS). It is an existing PSD-major source subject to the new source preconstruction review requirements. As previously discussed, the original project was subject to PSD review and BACT determinations for beryllium, fluoride, sulfuric acid mist and sulfur dioxide [1]. However, the cogeneration plant has been in commercial operation for more than two years and has established past actual emissions. The following table summarizes PSD applicability for this project based on a comparison of past actual to future actual emissions for the pollutants affected by the changes.

Table 4A. PSD Applicability - Comparison of Past Actual to Future Actual Annual Emissions

| Pollutant                         | Past Actual Emissions, TPY <sup>1</sup> | Future Actual Emissions, TPY <sup>2</sup> | Net Change TPY | PSD SER TPY | PSD?             |
|-----------------------------------|---|---|----------------|-------------|------------------|
| Carbon Monoxide (CO)              | 1526.07                                 | 2012.5                                    | + 486.4        | 100         | Yes              |
| Sulfur Dioxide (SO <sub>2</sub> ) | 133.23                                  | 402.5                                     | + 269.3        | 40          | Yes              |
| Beryllium (Be)                    | 0.00058                                 | 0.0009                                    | + 0.0003       | 0.0004      | No <sup>3</sup>  |
| Lead (Pb)                         | 0.102                                   | 0.108                                     | + 0.006        | 0.600       | No               |
| Mercury (Hg)                      | 0.005                                   | 0.007                                     | + 0.002        | 0.100       | No               |
| Fluorides (F1)                    | 0.996                                   | 1.08                                      | + 0.09         | 3           | Yes <sup>4</sup> |
| Sulfuric Acid Mist (SAM)          | 7.99                                    | 34.6                                      | + 26.6         | 26.6        | Yes              |

“TPY” means tons per year of emissions.

*Notes:*

1. CO and SO<sub>2</sub> emissions are based on CEMS data (April 1999 – March 2000). Sulfuric acid mist (SAM) emissions are assumed to be 6% of the SO<sub>2</sub> emissions, which is based on previous stack test data. Emissions of beryllium, lead, mercury, and fluorides are based on stack test data and actual annual heat input rates.
2. The applicant predicted future actual emissions of beryllium, lead, mercury, and fluorides based on operation at the full permitted heat input rate. Because past actual operation was approximately 93% of permitted capacity, the requested changes are not expected to result in significant net emissions increases for these pollutants. The applicant is allowed to predict future actual emissions because the cogeneration plant consists of electric utility steam generating units as

## TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

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defined in Rule 62-210.200(12)(d), F.A.C. This was discussed in detail in the technical review for the modification of to add natural gas (Permit No. PSD-FL-196L). The applicant elected to use potential CO, SAM, and SO<sub>2</sub> emissions based on recent continuous monitoring data for these pollutants. Note that SAM emissions are estimated at 6% of the total SO<sub>2</sub> emissions.

3. Beryllium is no longer regulated as a PSD pollutant.
4. Although the requested change is not expected to result in a significant net increase in fluoride emissions, it does require a revision of the original BACT determination.

The following sections discuss the individual requests and the Department's review and preliminary determination.

### 5. LOW SULFUR COAL

#### Proposed Modification

OkCP acknowledged that coal-handling facilities were never installed and coal should be removed as an authorized fuel.

#### Department Review and Preliminary Determination

The Department will remove coal as an authorized fuel throughout the permit. However, the permit will note that the design of the boilers included coal as an alternate fuel source. The maximum potential emissions for each pollutant will be adjusted accordingly.

### 6. CARBON MONOXIDE (CO) EMISSIONS

#### Proposed Modification

The applicant requests a revision of the CO emissions standard when firing biomass from 0.35 lb/MMBtu based on a 30-day rolling average to 0.35 lb/MMBtu based on a 12-month rolling average. The applicant contends that a longer averaging period is necessary to account for operational variations resulting from high moisture content of the biomass fuel, which is difficult to control. The applicant believes that significant rainfall events occurring in late 1999 caused excessive moisture in the wood and bagasse stockpiles. The applicant acknowledges that numerous changes were made during the extended shakedown period because the boiler, biomass feed system, and flue gas exhaust system did not initially perform as designed. To simplify compliance, the applicant also requests that the CO emissions standards for fossil fuels be revised to a 12-month rolling average.

The applicant provided a summary of BACT emissions standards for similar existing biomass boilers from EPA's RACT/BACT/LAER clearinghouse database. The applicant notes that "good combustion practices" are the predominant control technique. The requested emissions standard is well within the range of BACT determinations for these similar projects.

#### Department Review and Preliminary Determination

The cogeneration plant was originally permitted in 1993, subject to PSD review [1]. However, due to a netting analysis that considered emission decreases due to the shutdown of existing sugar mill boilers, PSD review was not triggered for CO emissions. Baseline CO emissions were estimated to be 10,388 tons per year and the potential CO emissions established in the PSD permit were 2012.5 tons per year (approximately an 80% decrease in actual CO emissions). The CO emissions standard was established based on the boiler design and the vendor's guarantee. The Department notes that the original CO standard was 0.35 lb/MMBtu based on an 8-hour averaging period, which was eventually revised to 0.35 lb/MMBtu based on a 30-day rolling average.

Based on CO CEMS data, there were several excursions of the current CO emissions standard of 0.35 lb/MMBtu (30-day rolling average). However, the boilers were in compliance with the current CO emissions standard the majority of the time. A strong correlation between CO emissions and other monitored parameters (such as fuel type, biomass ratio, steam production, etc.) was not apparent from the CEMS data. The highest 8-hour CEMS readings were: Boiler A – 2.69 lb/MMBtu; Boiler B – 4.28 lb/MMBtu; and Boiler C – 1.83



## TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

lb/MMBtu. Because these values were much higher than originally evaluated, the applicant provided an ambient impact analysis that indicated no adverse impacts from the higher than expected short-term CO emissions.

The applicant provided monthly rainfall data versus monthly CO emissions data that suggests significant periods of rainfall result in elevated CO emissions occurring shortly afterwards. The applicant contends that moisture in the stockpiles accumulates after a heavy rainfall and must be driven off in the boilers. This leads to less efficient fuel combustion and higher CO emissions until the stockpiles dry. The applicant believes that even a partial cover for a 2- or 3-day supply of dry biomass would be costly and substantially restrict the current biomass handling operations (tractors, loaders, etc.).

The Department reviewed EPA's July 2001 release (Supplement G) of the 5<sup>th</sup> edition of AP-42, the federal emission factor document [3]. The supplement included a new Section 1.6 for wood residue combustion in boilers. Several new test data sets were added to previous test data due to ongoing projects such as the Industrial Combustion Coordinated Rulemaking (ICCR) workgroup. The following important changes were noted:

- The general emission factor quality rating either remained the same or improved due to the changes.
- All emissions factors are now based on heat input (lb/MMBtu).
- Data is no longer reported based on "boiler type". When required, separate emission factors are provided for "wet wood" ( $\geq 20\%$  moisture) or "dry wood" ( $< 20\%$  moisture).
- The previous CO emission factor was 1.51 lb/MMBtu (equivalent) for spreader stokers and had a "C" quality rating. The revised CO emission factor is 0.60 lb/MMBtu for all fuels and boiler types and has an "A" quality rating.

The emission factor revision is significant because it is representative of actual tested similar units and carries the highest quality rating (A). Although AP-42 is not appropriate for establishing a permit standard, it is suitable for estimating long-term emissions from similar units within an industry. In looking closer at the test data used to generate the revised emissions factors, the following details are noted:

Table 6A. Comparison of CO Emission Factors (AP-42) for Wet and Dry Wood

| Parameter          | Wet Wood, lb/MMBtu | Dry Wood, lb/MMBtu |
|--------------------|--------------------|--------------------|
| Minimum            | 0.05               | 0.04               |
| Maximum            | 2.42               | 2.56               |
| Average            | 0.57               | 0.62               |
| Standard Deviation | 0.50               | 0.66               |

The above information does not appear to support the applicant's contention that higher CO emissions result from firing wet fuel. However, it is noted that the factor for wet wood was based only on 12 emissions tests, while the factor for dry wood was based on more than 60 tests. In addition, the test data does show substantial variations in emissions between tested units and individual tests. It also seems a logical assumption that a solid fuel, wet from recent rainfall, offers less efficient combustion and higher CO emissions than an identical dry fuel.

Based on the OkCP's CEMS and operational data, the actual CO emissions from the cogeneration boilers were 1526 tons per year. The actual heat input was 10,725,416 MMBtu per year. This equates to an annual CO emissions rate of 0.28 lb/MMBtu, which is approximately half of the expected rate based on AP-42 emission factor data for spreader stoker boilers. On a unit-by-unit basis, the average annual emission rates were: Boiler A – 0.25 lb/MMBtu; Boiler B – 0.30 lb/MMBtu; and Boiler C - 0.30 lb/MMBtu. These rates are approximately 15% below OkCP's requested standard of 0.35 lb/MMBtu based on a 12-month rolling average.

The Department also reviewed wood-fired boilers with PSD permits issued since 1989. Attachment B summarizes a list of facilities generated from EPA's RACT/BACT/LAER Clearinghouse with heat input greater

than 200 MMBtu per hour from wood firing. The CO emissions standards range from 0.29 lb/MMBtu to 2.25 lb/MMBtu. This is within the range used to develop the revised AP-42 emission factor as well as emissions from the OkCP plant. As an example, the Michigan Department of Environmental Quality issued a recent PSD permit modification to the Grayling Generating Station L.P. (Draft Permit June 2001). This facility operates a wood-fired boiler with a capacity of 523 MMBtu per hour, which is equipped with multi-clones, an electrostatic precipitator, and selective non-catalytic reduction. The fuel, boiler capacity, and control equipment appear very similar to OkCP's cogeneration boilers. The CO emissions standard for this unit is 464 ppmvd corrected to 7% oxygen based on a 24-hour average, which is equivalent to approximately 0.50 lb/MMBtu. It is also noted that many of the wood-fired boilers listed in this table operate within a paper mill or woodworking plant. These types of facilities generate a relatively homogenous supply of wood materials for use as boiler fuel. In contrast, OkCP obtains wood materials from nearby counties in the form of clean construction and demolition wood debris, dry wood, yard trash, land clearing debris, lumber, trees, tree remains, bagasse, cane tops and leaves, and other clean cellulose and vegetative matter. The variation in biomass types can lead to wide short-term variations in fuel heating values and moisture contents.

Finally, the Department notes the following statements made by the American Gas Association in a 1987 book discussing the control of air pollution by firing or co-firing natural gas: "Water content is a major variable in wood waste utilization and here again [natural] gas assist can serve as a useful co-fuel to accommodate the particular characteristic of any load in a heat recovery incinerator. The technology of hogged wood waste burning has advanced considerably in recent years. Gas assist for drying, pyrolysis and ignition and gas afterburning for emission control purposes adds the extra degree of control needed to accommodate a large diversity of wood waste fuels." [4]

The Department concludes that the applicant's request for a longer averaging period for the CO emissions standard is reasonable given this type of operation and the final design as constructed. The biomass fuel fired in the cogeneration boilers includes a broad range of vegetative materials that may have wide fluctuations in the short-term heating value and moisture content, which can result in higher short-term CO emissions. Substantial rainfall events appear to increase actual CO emissions. Therefore, the Department specifies the following draft BACT standards based on good combustion practices.

- The current CO standard of 0.35 lb/MMBtu based on a 30-day rolling average will be revised to 0.50 lb/MMBtu based on a 30-day rolling average.
- A CO standard of 0.35 lb/MMBtu based on a 12-month rolling average will be established.

In addition, all references to coal firing will be removed. The 12-month rolling average ensures that the cogeneration boilers, as constructed, remain capable of complying with the original design specification on a long-term basis. The increased 30-day rolling average provides operational flexibility in consideration of the varying fuel qualities and sets an upper limit. Compliance continues to be by CEMS. The draft permit will also include additional requirements regarding good combustion practices such as monitoring the flue gas oxygen content to optimize air/fuel ratio parameters, preventing tramp air intrusion into the boilers, mixing biomass to provide a homogeneous fuel blend, or supplemental fuel firing to enhance combustion.

The Department did not perform a rigorous review of available control equipment for this project. The highest ranking add-on control alternative would likely be a catalytic oxidation system. However, a biomass boiler may not be an appropriate application for this control option because of the relatively high particulate matter loading and flue gas moisture content, which can lead to fouling of the catalyst. Rather, the Department relied largely on the information regarding similar biomass boilers identified in the RACT/BACT/LAER clearinghouse. No add-on controls were specified for these types of units. The proposed emission standards appear to be well within the range identified as BACT for biomass boilers. Some consideration was also given to the wide range of biomass fuel being fired at this facility compared to similar facilities firing biomass from a single source. The revised standard does not result in increased allowable annual emissions.

## 7. SULFUR DIOXIDE (SO<sub>2</sub>) EMISSIONS

### Proposed Modification

The applicant requests the following revisions of the SO<sub>2</sub> biomass standards: from 0.10 lb/MMBtu to 0.20 lb/MMBtu based on a 24-hour average; from 0.02 lb/MMBtu (bagasse) and 0.05 lb/MMBtu (wood) to 0.10 lb/MMBtu (biomass) based on a 30-day rolling average; and a long-term SO<sub>2</sub> standard of 0.07 lb/MMBtu based on a 12-month rolling average. The applicant contends that these changes are necessary due to the higher than expected SO<sub>2</sub> emissions when firing biomass and offers two possible reasons. First, mechanical dust collectors were installed to remove large particles and prevent overloading the electrostatic precipitators (ESPs). The applicant believes that SO<sub>2</sub> in the flue gas is partially absorbed by large fly ash particles, which are typically alkaline in nature. Removing these larger particles immediately after the boiler air pre-heater allows less time for the reaction between SO<sub>2</sub> emissions and the alkaline particles to take place. Secondly, the applicant contends that actual analyses of biomass samples over the last several years indicate a greater variability in the sulfur content (particularly wood) than previously believed. The applicant notes that, based on their requests, annual potential SO<sub>2</sub> emissions would be reduced from 1154 to 402.5 tons per year. In addition, the applicant also requests revisions of the long-term biomass mix from 34% wood/66% bagasse to 50% wood/50% bagasse.

The applicant provided a summary of BACT emissions standards for similar existing biomass boilers from EPA's RACT/BACT/LAER clearinghouse database. "Low sulfur fuels" are typically specified for biomass boilers, although a few projects have required flue gas desulfurization equipment. SO<sub>2</sub> BACT standards ranged from 0.083 to 0.46 lb/MMBtu with the highest standard for a boiler firing a combination of bark and sludge. Paper mill sludge can have a much higher sulfur content than bark alone. Many facilities fuel units with wood materials from nearby cabinet shops or related activities. This provides a much more homogeneous and controllable fuel supply than that of OkCP. The applicant identifies technically feasible add-on control equipment such as wet and dry flue gas desulfurization. However, these systems result in waste disposal problems and would likely be cost prohibitive for retrofit to the existing units, particularly considering that potential SO<sub>2</sub> emissions are being reduced from 1154 to 402 tons per year as a result of this project. The applicant believes that low sulfur fuels continue to reflect BACT for these biomass boilers as evidenced by the RACT/BACT/LAER clearinghouse data.

### Department Review and Preliminary Determination

The original project was subject to PSD review for SO<sub>2</sub> emissions; however this was because coal was included as a "reliable" backup fuel due to financial concerns. For the initial project, the Department determined that firing low sulfur fuels, restricted fossil fuel firing, and an annual SO<sub>2</sub> emissions limit represented the Best Available Control Technology (BACT) for SO<sub>2</sub> emissions. The applicant's new requests would not affect the firing of "low sulfur" fuels. In fact, coal will be removed as an authorized fuel and fossil fuel firing (natural gas and distillate oil) will continue to be limited to less than 25% of the heat input for each calendar quarter. Allowable annual SO<sub>2</sub> emissions would be greatly reduced.

In reviewing the original application, assumptions related to biomass fuel sulfur content turned out to be poor. The following table summarizes the biomass fuel sulfur content.

**Table 7A. Biomass Fuel Sulfur**

| Information Source           | Wood, % by wt. dry                       | Bagasse, % by wt. dry                    |
|------------------------------|--|--|
| Original PSD Application [1] | 0.009%, avg.                             | 0.009%, avg.                             |
| OkCP, Actual Samples         | 0.02%, low<br>0.07%, avg.<br>0.27%, high | 0.02%, low<br>0.03%, avg.<br>0.05%, high |
| Babcock and Wilcox [2]       | 0.1%<br>(Pine and Hardwoods)             | No Data                                  |
| AP-42, Appendix A            | Negligible                               | "Low Levels"                             |

## TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

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As shown, these fuels typically have very low levels of sulfur. However, actual sampling data by OkCP shows a wide variation of fuel sulfur for wood and some variation for bagasse. The SO<sub>2</sub> emission factors corresponding to the average actual fuel sulfur would be 0.31 lb/MMBtu for wood and 0.16 lb/MMBtu for bagasse. Actual annual monitored SO<sub>2</sub> emissions (0.025 lb/MMBtu), suggest that only 10% of the potential emissions are exiting the exhaust stack. This could be due to a number of reasons, including: a portion of the available fuel sulfur is not oxidized and remains in the ash; absorption of SO<sub>2</sub> onto alkaline fly ash particles in the exhaust gas, which are removed in the ESP; or a combination of both. There is insufficient information to determine whether or not installation of the mechanical dust collectors affected any reduction mechanism.

EPA revised Section 1.6 (Supplement G to the 5<sup>th</sup> edition) for wood residue combustion in boilers in July of 2001 [3]. The Department notes the following important changes regarding SO<sub>2</sub> emission rates:

- The old SO<sub>2</sub> emission factor was 0.008 lb/MMBtu (equivalent) for wood-fired boilers with a “B” rating. The revised SO<sub>2</sub> emission factor is 0.025 lb/MMBtu for all fuels and boiler types with an “A” rating.
- Based on the AP-42 test data used to generate the emissions factors, the average SO<sub>2</sub> emission rate for all tested spreader-stoker boilers firing wet wood is 0.032 lb/MMBtu.

This revision is significant because it reflects an increase of more than three times the previous published value. A review of the supporting test data shows that the measured SO<sub>2</sub> emission rates ranged from 0.001 to 0.13 lb/MMBtu. In addition, the tested units did not employ equipment specifically designed to remove SO<sub>2</sub> emissions, which means that the tested emission rates should be a function of the wood sulfur content. This suggests a wide variation in the wood sulfur contents fired during the tests, which is reflected in the new emission factor.

Again, Attachment B summarizes a list of facilities generated from EPA’s RACT/BACT/LAER Clearinghouse for similar boilers with heat inputs greater than 200 MMBtu per hour from wood-firing that were permitted after 1989. The SO<sub>2</sub> emissions standards range from 0.008 to 0.30 lb/MMBtu, with an average of 0.06 lb/MMBtu. Many of the averaging periods are on a long-term basis. One similar facility (Scott Paper Company) has a 365-day rolling average.

Based on CEMS data, the actual annual SO<sub>2</sub> emissions from the cogeneration boilers averaged 133.23 tons per year. The actual heat input was 10,725,416 MMBtu per year, which is 93% of the permitted annual capacity. This equates to an annualized emissions rate of 0.025 lb/MMBtu, which correlates well with the revised AP-42 emissions factor of 0.025 lb/MMBtu. Individually, the calculated annual emissions rates would be: Boiler A – 0.025 lb/MMBtu; Boiler B - 0.024 lb/MMBtu; and Boiler C - 0.026 lb/MMBtu.

To evaluate the applicant’s belief that flue gas desulfurization remains cost prohibitive for the biomass boilers, the Department estimated costs for a lime spray dryer system, which is typically less expensive than wet scrubbers or other dry injection techniques with similar control efficiencies. This technology is well known and utilized at numerous power plants around the country. Based on the original vendor quotes in the 1993 permit application, control costs were corrected to reflect less “contingencies” and lower operational costs than originally assumed. Examples of lower operating costs include reducing hydrated lime and solid waste disposal costs in proportion to the amount of SO<sub>2</sub> available for control. In addition, capital cost recovery was based on 7% interest and a 15-year equipment life. Lime spray dryer systems for the project were estimated to result in \$7,130,500 in capital costs and \$1,427,700 in annual operating costs. Total annualized costs for a lime spray dryer system were estimated to be \$2,210,600 per year. Based on an uncontrolled emission rate of 0.07 lb/MMBtu, the cost effectiveness would be \$5772 per ton of SO<sub>2</sub> removed (383 tons of SO<sub>2</sub> removed with a control efficiency of 95%). Based on an uncontrolled emission rate of 0.06 lb/MMBtu, the cost effectiveness would be \$8068 per ton of SO<sub>2</sub> removed (274 tons of SO<sub>2</sub> removed with a control efficiency of 95%).

Because equipment costs can change substantially over eight years, an additional estimate was performed based on information available from the power plant industry [5, 6, 7]. Based on an industry factor of \$100 per installed kW, the total capital costs were estimated to be \$7,500,000. Based on an industry factor of \$4 per kW-yr, fixed annual operating and maintenance costs were estimated to be \$300,000 per year. Based on an industry factor of \$2.24 per MW-hr, 90% capacity, and 61% utilization, the variable annual operating and maintenance

costs were estimated to be \$814, 000 per year. Based on a 7% interest rate and 15-year equipment life, the annualized control costs were estimated to be \$1,937,500 per year. Based on an uncontrolled emission rate of 0.06 lb/MMBtu, the cost effectiveness would be \$7071 per ton of SO<sub>2</sub> removed (274 tons of SO<sub>2</sub> removed with a control efficiency of 95%). This represents a less than 15% difference with the previous estimate and provides some reassurance.

However, actual annual SO<sub>2</sub> emissions have been relatively low. As previously mentioned, the actual annual SO<sub>2</sub> emissions from this plant were reported as 133 tons per year. Assuming annualized control costs of \$2,074,050 (average of two examples) and a control efficiency of 95%, the cost effectiveness would approach \$16,500 per ton of SO<sub>2</sub> removed. This would clearly be cost prohibitive.

The Department concludes that the applicant's request for revised SO<sub>2</sub> emissions standards is reasonable based on the available information, which indicates that the fuel sulfur content of biomass is higher than originally proposed and much more variable. Bagasse is about three times higher and wood materials nearly seven times higher than originally expected. The SO<sub>2</sub> emissions are directly a function of the fuel sulfur content, but are difficult to minimize on a short-term basis because of fuel sulfur variation and the unqualified SO<sub>2</sub> removal mechanism. The retrofit of add-on flue gas desulfurization equipment does not appear appropriate for the existing units nor the requested modification. Therefore, the Department establishes the following draft BACT standards based on the firing of low sulfur fuels.

- The current 24-hour SO<sub>2</sub> standard is revised to 0.20 lb/MMBtu when firing any authorized fuel.
- The 30-day rolling SO<sub>2</sub> standard will be revised to 0.10 lb/MMBtu when firing any authorized fuel. This is consistent with the 30-day averaging period specified in NSPS Subpart Da and represents a much lower limit than the NSPS (0.60 lb/MMBtu for solid fuel and 0.20 lb/MMBtu for gas and oil firing).
- An annual SO<sub>2</sub> standard will be established at 0.06 lb/MMBtu based on a 12-month rolling average when firing any fuel.

All references to coal firing will be removed. The 30-day rolling standard provides the operational flexibility requested due to fuel sulfur variability while maintaining low SO<sub>2</sub> emissions. The 12-month standard is consistent with past operation, while giving consideration to the following: absence of coal firing; higher fuel sulfur contents for biomass than previously believed; an increased wood/bagasse fuel ratio; the addition of natural gas firing; and the quarterly heat input limit on fossil fuel firing. In addition, note "c" in Permit Condition No. 20 will be deleted because the permitting action satisfies this requirement. This note allows revision of the 30-day rolling average SO<sub>2</sub> emissions standard subsequent to initial compliance testing.

## 8. SULFURIC ACID MIST (SAM) EMISSIONS

### Proposed Modification

The applicant requests revision of the sulfuric acid mist emission standard for biomass firing from 0.003 to 0.012 lb/MMBtu based on an average of three 1-hour test runs. The basis for the request is that sulfuric acid mist emissions were originally estimated based on SO<sub>2</sub> emissions for which an increase in the emission limit has also been requested.

### Department Review and Preliminary Determination

The initial tests conducted for sulfuric acid mist indicate an actual average emission rate of 0.0015 lb/MMBtu. This is approximately 6% of the annual actual SO<sub>2</sub> emission rate of 0.025 lb/MMBtu. The Department notes that the original PSD permit did not include a BACT determination for sulfuric acid mist emissions, as was required [1]. Limiting SO<sub>2</sub> emissions effectively limits potential emissions of sulfuric acid mist. Therefore, the Department makes a draft BACT determination that sulfuric acid mist emissions are minimized by the use of low sulfur fuels and restricted fossil fuel firing. The revised permit will note that sulfuric acid mist emissions are estimated to be approximately 6% of the SO<sub>2</sub> emissions based on CEMS data for purposes of reporting annual emissions.

## 9. BERYLLIUM EMISSIONS

### **Proposed Modification**

The applicant requests removal of the beryllium emissions standards and testing requirements for coal and oil firing. The applicant contends that these limitations were the result of coal firing, which accounted for the majority the total emissions. Because coal firing is being removed from the permit, the applicant requests removal of these standards.

### **Department Review and Preliminary Determination**

In the original PSD permit, the Department determined BACT to be the firing of low sulfur coal and distillate oil, the restricted use of these fuels, and the installation of an electrostatic precipitator to capture particulate matter emissions, which would contain beryllium [1]. The determination stated that the primary sources of beryllium were fossil fuels and specified limits for coal and oil firing. The original application considered beryllium emissions to be negligible when firing biomass fuels and the permit contains no emission standards for biomass firing. The beryllium standard ( $5.9 \times 10^{-06}$  lb/MMBtu) for coal firing is nearly 17 times higher than the standard for oil firing ( $3.5 \times 10^{-07}$  lb/MMBtu). Actual stack test data indicates that beryllium emissions when firing bagasse are below the detectable level of the test method. Limited test data when firing wood material indicates beryllium emissions of  $2.23 \times 10^{-07}$  lb/MMBtu, which is on the order of magnitude of the oil-firing standard. However, several of the test runs reported emission rates below the detectable level of the test method.

Beryllium is no longer a PSD regulated pollutant (see Table 62-212.400-2, F.A.C.) and coal, the highest potential source of beryllium, will be removed as an allowable fuel. Therefore, the beryllium emission standards and testing requirements for coal and oil firing will be removed. Beryllium emissions continue to be minimized by the firing of biomass fuels and very low sulfur distillate oil, which contain only trace amounts of beryllium. In addition, the beryllium is generally emitted as a particulate emission, which continues to be filtered out with the existing electrostatic precipitator (ESP). This determination results in the regulation of beryllium consistent with other trace metals for similar combustion sources.

## **10. FLUORIDE EMISSIONS**

### **Proposed Modification**

The applicant requests removal of the fluoride emission standards and testing requirements for both coal and oil firing. The applicant contends that these limitations were the result of coal firing, which accounted for nearly 99% of the total emissions. Because coal firing is being removed from the permit, the applicant requests removal of these standards. If a fluoride limit for biomass firing is required by the Department, the applicant requests a standard of  $7.0 \times 10^{-04}$  lb/MMBtu. The applicant notes that this is the highest tested rate for bagasse and wood firing from a single boiler and would likely overstate the annual emissions. However, the applicant believes that such a higher limit is necessary due to the potential fuel variability.

### **Department Review and Preliminary Determination**

In the original PSD permit, the Department determined BACT to be the firing of low sulfur coal and the use of an ESP to capture particulate matter emissions, which contained fluorides [1]. The determination stated that the primary source of fluorides was low sulfur coal, but specifies limits for both pollutants when firing coal and distillate oil. The original application considered fluoride emissions to be negligible when firing biomass fuels and the permit contains no emission standards for biomass firing.

The fluoride standard ( $2.4 \times 10^{-02}$  lb/MMBtu) for coal firing is several orders of magnitude higher than the standard for oil firing ( $6.3 \times 10^{-06}$  lb/MMBtu). Actual stack test data indicates that fluoride emissions when firing bagasse are  $2.24 \times 10^{-04}$  lb/MMBtu and when firing wood material are  $1.46 \times 10^{-04}$  lb/MMBtu, which is higher than the limit for oil firing. Fluoride would generally be emitted in gaseous form as hydrogen fluoride, which would not be controlled by an electrostatic precipitator. Given the maximum emissions rate of  $7.0 \times 10^{-04}$  lb/MMBtu requested by the applicant, maximum annual fluoride emissions would only be 4.03 tons per year. At this level, the Department believes that add-on controls would be cost prohibitive. Therefore, the

Department makes the following draft BACT determination.

- All references to coal firing will be removed.
- The fluoride emission standard for oil firing will be removed.
- Fluoride emissions shall be minimized by firing biomass as the primary fuel with natural gas and very low sulfur distillate oil as supplemental fuels.

The firing of biomass, natural gas, and distillate oil (which contain little or no fluorides), represents BACT for the biomass boilers. The Department believes that enough stack testing has been performed to determine a reliable emission factor. Uncontrolled fluoride emissions are typically very low for the fuels authorized in the draft permit.

## 11. LEAD EMISSIONS

### Proposed Modification

The applicant requests revision of the lead emissions standard from  $2.5 \times 10^{-5}$  to  $1.6 \times 10^{-4}$  lb/MMBtu for bagasse firing, which would be the same as the standard for firing wood material. This change would result in a single limit for “biomass” fuels and simplify the testing requirements. The applicant also requests that the emissions standards be “bubbled” over the three cogeneration boilers.

### Department Review and Preliminary Determination

Based on actual stack tests, lead emissions range from  $3.4 \times 10^{-6}$  to  $2.0 \times 10^{-5}$  lb/MMBtu for bagasse firing. (A single high value of  $8.4 \times 10^{-5}$  lb/MMBtu for wood firing occurred with high particulate matter emissions prior to installation of the mechanical dust collectors.) The test results show high variability between individual units and tests. The original PSD preconstruction review was based on a bagasse emission rate of  $7.7 \times 10^{-4}$  lb/MMBtu for the existing mill boilers. Based on this emission rate, an assumed particulate removal efficiency of 90% for the existing wet scrubbers, and a designed particulate removal efficiency of 98% for the for the ESP/dust collectors, the estimated controlled emission rate for bagasse firing from the cogeneration boilers would be  $1.5 \times 10^{-4}$  lb/MMBtu. This is similar to the requested new emission standard.

The current lead emissions standard for wood firing is  $1.6 \times 10^{-4}$  lb/MMBtu. Based on actual stack tests, lead emissions from wood firing ranged from  $7.97 \times 10^{-6}$  to  $8.4 \times 10^{-5}$  lb/MMBtu, which is nearly 50% of the current standard for the highest rate. The Department also notes that the original project did not trigger PSD review for lead emissions [1]. According to the original PSD review, the baseline lead emissions are 0.280 tons per year and the potential lead emissions specified in the original PSD permit were 0.17 tons per year. This resulted in an expected net emissions decrease of 0.11 tons per year and avoided PSD review. Based on this information, the Department makes the following preliminary determination.

- All references to coal firing will be removed.
- The lead emission standards will be revised to  $1.5 \times 10^{-4}$  lb/MMBtu for firing any authorized fuel.

The revised standards continue to ensure that the project does not trigger PSD review for lead. The changes do not relax any requirements for existing control equipment.

## 12. MERCURY EMISSIONS

### Proposed Modification

The applicant requests revision of the mercury emissions standard for wood firing from  $4.0 \times 10^{-6}$  lb/MMBtu to  $5.43 \times 10^{-6}$  lb/MMBtu and that the standards be “bubbled” over the three cogeneration boilers. This would be consistent with the mercury limit when firing bagasse, results in a single limit for “biomass” fuels, and simplifies the testing requirements. The applicant also requests that the requirement to operate the activated carbon injection system be removed due to compliance with the existing mercury emission limits without carbon injection. The applicant would retain the existing carbon injection system in place in case operation in the future warrants reactivation of the system.

### Department Review and Preliminary Determination

Based on nine initial test runs conducted in 1996 when injecting activated carbon, the estimated mercury emission rate averaged:  $3.05 \times 10^{-06}$  lb/MMBtu with an injection rate of 7 lb/hour,  $2.06 \times 10^{-06}$  lb/MMBtu with an injection rate of 16 lb/hour, and  $2.84 \times 10^{-06}$  lb/MMBtu with an injection rate of 23 lb/hour. The tests were not conclusive with regard to effective mercury control by carbon injection, but did indicate low overall emissions.

Based on nine test runs for bagasse firing conducted in 1999 without activated carbon injection, the mercury emission rate ranged  $0.348 \times 10^{-06}$  lb/MMBtu to  $0.616 \times 10^{-06}$  lb/MMBtu. Based on nine test runs for wood firing conducted in 1999 without activated carbon injection, the average mercury emission rate ranged from  $1.02 \times 10^{-06}$  lb/MMBtu to  $3.28 \times 10^{-06}$  lb/MMBtu. In fact, only two of the eighteen test runs when firing either fuel were above the *lowest* estimated average emission rate when injecting any carbon. The similar emission rates with and without carbon injection are likely the result of low uncontrolled mercury emissions combined with an already high carbon content in the flue gas that results from combusting biomass. Because the units could comply with the mercury emission limits without injecting carbon, these systems are not currently in operation.

Mercury emissions when firing bagasse averaged  $0.64 \times 10^{-06}$  lb/MMBtu over the last three years, which is approximately 10% of the requested standard. The highest individual test for firing bagasse indicated a mercury emission rate of  $1.41 \times 10^{-06}$  lb/MMBtu. Mercury emissions when firing wood materials averaged  $1.15 \times 10^{-06}$  lb/MMBtu over the last three years, which is approximately 20% of the requested standard. The highest individual test for wood firing indicated a mercury emission rate of  $3.6 \times 10^{-06}$  lb/MMBtu.

Based on the original PSD application, mercury emissions when firing wood were expected to be about 19 times *lower* than when firing bagasse. Actual tests indicate that mercury emissions when firing wood are nearly two times *higher* than when firing bagasse. The mercury limit in original permit was  $8.4 \times 10^{-06}$  lb/MMBtu for coal firing. The emission factors for both bagasse and oil firing were based on a 30% reduction with the activated carbon injection system. However, each boiler has been able to comply with the mercury limits without injecting activated carbon. In addition, original permit Condition No. 25 of the permit states, "The [fuel management] plan shall include mercury emission factors based on stack testing and baseline estimates for the existing Okeelanta facility." Note that mercury emissions were not subject to an initial BACT determination [1].

Based on the above information, the Department makes the following preliminary determination:

- All references to coal firing will be removed.
- The mercury emission standards will be revised to  $5.4 \times 10^{-06}$  lb/MMBtu for firing any authorized fuel.
- If two or more cogeneration boilers exceed the mercury emission limit, the draft permit requires reactivation of the carbon injection system and specifies actions necessary to identify an effective minimum carbon injection rate to reduce mercury emissions.

The potential mercury emissions from the entire cogeneration plant are approximately 62 pounds per year, which is well below the PSD significant emissions rate of 200 pounds per year. Annual stack testing is required to determine compliance.

### 13. OTHER MISCELLANEOUS CHANGES

#### Proposed Modification

The applicant also requests the following additional changes: remove annual testing requirements for CO, NOx, SO<sub>2</sub>, and visible emissions because compliance for these pollutants is based on continuous monitoring systems; remove the annual testing requirements for beryllium and fluorides because coal firing is being removed; remove the annual testing requirements for arsenic, copper, and chromium be removed because there are no related emissions "standards" for these pollutants; remove the requirement to conduct PM<sub>10</sub> testing because the PM and PM<sub>10</sub> standards are identical; specify that EPA Method 29 may also be used for testing lead and mercury emissions; revise the conditions covering startup, shutdown and malfunctions to allow for up to six hours for a cold startup, three hours for a warm startup, two hours for a shutdown, and two hours for a



malfunction; and up to four 6-minute periods of opacity in excess of the standard due to soot blowing.

### Department Review and Preliminary Determination

The Department agrees with the applicant's requests, subject to the following conditions:

- All of the requirements regarding coal firing will be removed.
- The permit will be revised to make it clear that compliance with the CO, NO<sub>x</sub>, and SO<sub>2</sub> emissions standards will be based on CEMS data.
- The permit will be revised to make it clear that the permittee would demonstrate compliance with the opacity limit based on COMS data, but that EPA Method 9 observations could also be used. This provides a method for the Compliance Authority to verify visible emissions as well as an alternate method in case of a monitor malfunction.
- The testing requirements for arsenic, copper, and chromium emissions will be removed because there are no emissions standards for these pollutants. However, the permit does contain acceptance criteria for these contaminants in the wood materials to be fired as fuel. The draft permit will include more specific requirements for sampling and analyzing the as-fired biomass fuel.
- Based on limited test data, PM<sub>10</sub> emissions appear to be approximately 70% of total filterable particulate emissions. Because the emissions standard for PM<sub>10</sub> emissions is the same as the filterable particulate matter emissions, the requirement to conduct PM<sub>10</sub> tests will be removed. A requirement will be added to report all particulate matter emissions as PM<sub>10</sub>.
- EPA Method 29, the EPA-approved test method for multiple metals, will be added to the allowable test methods for lead and mercury in addition to EPA Methods 12 and 101A, respectively.
- The conditions covering periods of startup, shutdown and malfunction will be revised. Definitions were added for startup, warm startup, cold startup, shutdown, and malfunction. For CO and NO<sub>x</sub> emissions, the following periods of data may be excluded in a 24-hour period from the compliance determinations: six hours due to cold startup, three hours due to warm startup, two hours due to shutdown, and two hours due to malfunction. In addition, the amount of excluded data was limited to no more than 183 hours in any calendar quarter (an average of two hours per day). No SO<sub>2</sub> CEMS data may be excluded.
- The conditions regarding opacity will be revised as follows: natural gas or distillate oil shall be fired during startup prior to energizing the ESP; the ESP shall be placed on line once the recommended operational temperature has been maintained; the ESP shall be on line and functioning properly before firing any biomass; the opacity standard does not apply when the ESP is offline during startup or shutdown; up to two hours of COMS data in a 24-hour period may be excluded due to malfunction if documented within one working day of occurrence. No COMS data may be excluded due to soot blowing because this conflicts with the NSPS requirements.

## 14. AIR QUALITY MODELING

### Project Summary

The applicant predicts that the proposed project could result in increased actual emissions of CO and SO<sub>2</sub> at levels exceeding the PSD significant emission rates. SO<sub>2</sub> is a criteria pollutant with defined national and state ambient air quality standards (AAQS), PSD Class I/II significant impact levels, and PSD Class I/II increments. CO is a criteria pollutant with only AAQS and PSD Class II significant impact levels defined for it. The applicant's initial impact analysis predicted that ambient concentrations of CO and SO<sub>2</sub> could be above the significant impact levels. Therefore, the following additional analyses were required.

- An AAQS analysis for CO and SO<sub>2</sub>;
- A PSD Class I/II increment analysis for SO<sub>2</sub>;
- An analysis of impacts on soils, vegetation, visibility and of growth-related air quality modeling impacts.

## TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

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Based on the applicant's initial screening analysis, the predicted ambient CO and SO<sub>2</sub> concentrations did not exceed the de minimis ambient impacts listed in Table 62-212.400-4, F.A.C. Therefore, preconstruction ambient monitoring is not required and existing representative ambient monitoring data was used in the additional air quality analyses. The applicant's AAQS analysis predicted ambient levels of CO and SO<sub>2</sub> well below the Ambient Air Quality Standards. The applicant's Class II increment analysis for SO<sub>2</sub> predicted ambient concentrations well below the increments defined for PSD Class II areas in the vicinity of the project. The nearest Class I area is the Everglades National Park which is located approximately 92 km south of the project site. The applicant's Class I increment analysis for SO<sub>2</sub> predicted ambient concentrations below the PSD Class I increments defined for national parks and wildlife areas.

Based on the required analyses, the Department has reasonable assurance that the proposed project, as described in this report and subject to the proposed draft permit conditions, will not cause or significantly contribute to a violation of any AAQS or PSD increment. However, the following EPA-directed stack height language is included: "In approving this permit, the Department has determined that the application complies with the applicable provisions of the stack height regulations as revised by EPA on July 8, 1985 (50 FR 27892). Portions of the regulations have been remanded by a panel of the U.S. Court of Appeals for the D.C. Circuit in *NRDC v. Thomas*, 838 F. 2d 1224 (D.C. Cir. 1988). Consequently, this permit may be subject to modification if and when EPA revises the regulation in response to the court decision. This may result in revised emission limitations or may affect other actions taken by the source owners or operators." A discussion of the required analyses follows.

### **ISCST3 Air Dispersion Model**

The EPA-approved Industrial Source Complex Short-Term (ISCST3) dispersion model was used to evaluate the predicted ambient pollutant impacts from the proposed project and other existing major facilities. The model determines ground-level ambient concentrations of inert gases or small particles emitted into the atmosphere by point, area, and volume sources. The model incorporates elements for plume rise, transport by the mean wind, Gaussian dispersion, and pollutant removal mechanisms such as deposition. The ISCST3 model allows for the separation of sources, building wake downwash, and various other input and output features. A series of specific model features, recommended by the EPA, are referred to as the regulatory options. The applicant used the EPA recommended regulatory options in each modeling scenario. Direction-specific downwash parameters were used for all sources for which downwash was considered. The stacks associated with this project will not exceed the good engineering practice (GEP) stack height criteria.

Meteorological data used in the ISCST3 model consisted of a concurrent 5-year period of hourly surface weather observations and twice-daily upper air soundings from the National Weather Service (NWS) station at West Palm Beach, Florida. The 5-year period of meteorological data was from 1987 through 1991. This NWS station was selected for use in the study because it is the closest primary weather station to the study area and is most representative of the project site. The surface observations included wind direction, wind speed, temperature, cloud cover, and cloud ceiling.

### **CALPUFF Air Dispersion Model**

A long-range transport model was required to evaluate impacts to the Everglades National Park (ENP) because this designated Class I area is greater than 50 km from the proposed project. The applicant used the California Puff (CALPUFF) dispersion model to evaluate potential impacts to the nearest PSD Class I area with regard to the significant impact analysis, PSD increment analysis, and regional haze. CALPUFF is a non-steady state, Lagrangian, long-range transport model that incorporates Gaussian puff dispersion algorithms. The model predicts ambient concentrations of inert gases or small particles emitted into the atmosphere by point, line, area, and volume sources. The CALPUFF model has the capability to treat time-varying sources. It is also suitable for modeling domains from tens of meters to hundreds of kilometers, and has mechanisms to handle rough or complex terrain situations. Finally, the CALPUFF model is applicable for inert pollutants as well as pollutants that are subject to linear removal and chemical conversion mechanisms.

Meteorological data was processed by the California Meteorological (CALMET) model for use in the

## TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

CALPUFF air dispersion model. The CALMET model utilizes data from multiple meteorological stations and produces a three-dimensional modeling grid domain of hourly temperature and wind fields. The wind field is enhanced by the use of terrain data, which is also input into the model. Two-dimensional fields such as mixing heights, dispersion properties, and surface characteristics are produced by the CALMET model as well. For this project, the CALMET model produced a rectangular modeling domain that is approximately 470 km (N-S) by 450 km (E-W). The southwest corner is the origin of the modeling domain and is located at 23.8° north latitude and 83.5° west longitude. This modeling domain was produced by using 1990 meteorological data from 3 sea surface, 3 upper air, 8 land surface, and 23 precipitation stations located throughout Florida and adjacent waters.

### Significant Impact Analysis

Initially, the applicant conducts modeling using only the proposed project's emissions changes. If this modeling shows significant impacts, further modeling is required to determine the project's impacts on the AAQS or PSD increments. For determining these impacts a combination of polar and rectangular receptors were located along the fenced and/or controlled access property line and out to 30 km from the cogeneration boilers, which are located in a PSD Class II area. In addition, 126 discrete receptors were located in the ENP, which is designated as a PSD Class I area. For each pollutant subject to PSD and also subject to PSD increment and/or AAQS analyses, this modeling compares maximum predicted impacts due to the project with PSD significant impact levels to determine whether or not the project could result in a significant impact to a PSD Class II area (area in the vicinity of the facility) or a PSD Class I area (designated national parks or wildlife areas). If the maximum predicted impact from a project is less than the corresponding significant impact level, the project is said to have an insignificant impact and further analysis is not required. If a project is determined to have a significant impact, a full impact analysis is required to evaluate not only the impact from the project, but also other nearby major sources and area background concentrations. Ambient impacts predicted by the full impact analysis must meet all applicable AAQS and PSD increments for each pollutant exceeding the PSD significant impact level.

Using the ISCST3 air dispersion model described above, the applicant performed a PSD Class II significant impact analysis for CO and SO<sub>2</sub>. The following table summarizes the results of this modeling, including the predicted radius of significant impact, if applicable.

Table 14A. Results of Significant Impact Analysis for PSD Class II Areas (Vicinity of Project)

| Pollutant       | Averaging Period | Maximum Predicted Impacts (µg/m <sup>3</sup> ) | Significant Impact Levels (µg/m <sup>3</sup> ) | Significant Impact? | Radius of Significant Impact (km) |
|-----------------|------------------|--|--|---------------------|-----------------------------------|
| CO              | 1-hr             | 2580   | 2000   | Yes                 | 6                                 |
|                 | 8-hr             | 150  | 500  | No                  |                                   |
| SO <sub>2</sub> | 3-hour           | 13   | 25   | No                  | 10                                |
|                 | 24-hour          | 9  | 5  | Yes                 |                                   |
|                 | Annual           | 0.2  | 1  | No                  |                                   |

Using the CALPUFF dispersion model described above, the applicant performed a PSD Class I significant impact analysis for SO<sub>2</sub>. The following summary table shows the results of this modeling.

Table 14B. Results of Significant Impact Analysis for PSD Class I Areas (ENP)

| Pollutant       | Averaging Period | Maximum Predicted Impacts (µg/m <sup>3</sup> ) | EPA Significant Impact Levels (µg/m <sup>3</sup> ) | Significant Impact? |
|-----------------|------------------|--|--|---------------------|
| SO <sub>2</sub> | 3-hour           | 0.6  | 1.0  | No                  |
|                 | 24-hour          | 0.3  | 0.2  | Yes                 |
|                 | Annual           | 0.0  | 0.1  | No                  |

## TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

As shown in the tables, the project is significant for both CO and SO<sub>2</sub>. Therefore, the following additional analyses are required: an AAQS analysis for CO and SO<sub>2</sub>; a PSD Class II increment analysis for SO<sub>2</sub>; and a PSD Class I increment analysis for SO<sub>2</sub>.

### Analysis of Existing Air Quality

Preconstruction ambient air quality monitoring is required for all pollutants subject to PSD review unless exempt or otherwise satisfied by existing data. The preconstruction ambient monitoring data is used to establish an existing ambient background concentration, which can be used further air quality modeling analyses. Based on air quality modeling, the project may be exempt from the preconstruction monitoring if the resulting maximum ambient impact level is less than the de minimis concentration listed in Table 62-212.400-3, F.A.C. Also, the Department may approve existing ambient monitoring data that is believed to be representative of the area.

Using the ISCST3 air dispersion model, the applicant performed an air quality analysis to determine predicted impacts for comparison to the preconstruction monitoring de minimis impact levels. The following table shows that the predicted impacts from the project are less than the corresponding de minimis levels; therefore, preconstruction ambient air quality monitoring is not required for any pollutant.

Table 14C. Maximum Predicted Air Quality Impacts Compared to De Minimis Ambient Impact Levels

| Pollutant       | Averaging Time | Maximum Predicted Impact ( $\mu\text{g}/\text{m}^3$ ) | De Minimis Level ( $\mu\text{g}/\text{m}^3$ ) | Impact Greater Than De Minimis? |
|-----------------|----------------|---|---|---------------------------------|
| CO              | 8-hour         | 150   | 575   | No                              |
| SO <sub>2</sub> | 24-hour        | 9   | 13  | No                              |

### AAQS Analysis

Using the ISCST3 model, the applicant performed a full impact modeling analysis to determine impacts of all sources in the vicinity of the project for comparison to the Ambient Air Quality Standards (AAQS). Receptors were placed along the property boundary and out to 10 km for SO<sub>2</sub> and 6 km for CO (each pollutant's respective radius of significant impact). Background concentrations were established from data collected at representative SO<sub>2</sub> and CO monitors located in the area. These background concentrations take into account all sources of a particular pollutant that are not explicitly modeled. Because five years of data are used in the modeling analysis, the highest-second-high (HSH) short-term predicted concentrations were compared to the corresponding AAQS. For an annual average, the highest predicted yearly average was compared to the standard. The following table summarizes the results of this analysis.

Table 14D. Results of AAQS Impact Analysis

| Pollutant       | Averaging Period | Modeled Sources ( $\mu\text{g}/\text{m}^3$ ) | Background Concentration ( $\mu\text{g}/\text{m}^3$ ) | Total Concentration ( $\mu\text{g}/\text{m}^3$ ) | Florida AAQS ( $\mu\text{g}/\text{m}^3$ ) | Total Impact Greater Than AAQS? |
|-----------------|------------------|--|---|--|---|---------------------------------|
| CO              | 1-hr             | 3100   | 4500  | 7500   | 40,000                                    | No                              |
|                 | 8-hr             | 800  | 3000  | 3800   | 10,000                                    | No                              |
| SO <sub>2</sub> | 3-hour           | 248  | 201   | 47   | 1300                                      | No                              |
|                 | 24-hour          | 76   | 63  | 13   | 260                                       | No                              |
|                 | Annual           | 16   | 11  | 5  | 60  | No                              |

As shown, the predicted maximum ambient concentrations are well below the AAQS.

**SO<sub>2</sub> Increment Analysis for PSD Class II Area**

The SO<sub>2</sub> PSD increment represents the amount that new sources in an area may increase ambient ground level concentrations of SO<sub>2</sub> from a baseline concentration, which was established in 1977. Receptors were placed along the property boundary and out to 10 km. Using the ISCST3 air dispersion model, the applicant performed a full impact modeling analysis to evaluate the SO<sub>2</sub> impacts to the area in the vicinity of the project, which is designated as a PSD Class II area. The emission values that are input into the model for predicting increment consumption are based on maximum potential emissions from increment-consuming facility sources and all other increment-consuming sources in the vicinity of the facility. Because five years of data are used in modeling analysis, the highest-second-high (HSH) short-term predicted concentration was compared with the corresponding PSD increment. For an annual average, the highest predicted yearly average was compared to the standard. The following table summarizes the results of this analysis.

Table 14E. Results of SO<sub>2</sub> Increment Analysis for Class II Areas (Vicinity of Project)

| Pollutant       | Averaging Period | Maximum Predicted Impact (µg/m <sup>3</sup> ) | PSD Class II Increment (µg/m <sup>3</sup> ) | Impact Greater Than Allowable Increment? |
|-----------------|------------------|---|---|--|
| SO <sub>2</sub> | 3-hour           | 54  | 512   | No                                       |
|                 | 24-hour          | 12  | 91  | No                                       |
|                 | Annual           | 0   | 20  | No                                       |

As shown, the predicted maximum ambient impacts are well below the PSD increments defined for the Class II area in the vicinity of the project.

**SO<sub>2</sub> Increment Analysis for PSD Class I Area**

Using the CALPUFF air dispersion model, the applicant performed a full impact modeling analysis to evaluate 24-hour average SO<sub>2</sub> impacts to the Everglades National Park, which is the nearest PSD Class I area. The highest short-term predicted concentration was compared to the respective PSD increment. The following table summarizes the results of this analysis.

Table 14F. Results of SO<sub>2</sub> Increment Analysis for Nearest PSD Class I Area (Everglades National Park)

| Pollutant       | Averaging Period | Maximum Predicted Impact (µg/m <sup>3</sup> ) | PSD Class II Increment (µg/m <sup>3</sup> ) |
|-----------------|------------------|---|---|
| SO <sub>2</sub> | 24-hour          | 3.5   | 5   |

As shown, the predicted maximum ambient impact is well below the PSD increment defined for the Class I area.

**Additional Impacts Analysis: Soils, Vegetation, Wildlife, and Visibility**

The maximum ambient CO and SO<sub>2</sub> concentrations due to project impacts and other nearby sources are predicted to be well below the corresponding Ambient Air Quality Standards (AAQS). The AAQS are designed to protect both the public health and welfare. As such, this project is not expected to have a harmful impact on soils and vegetation in the PSD Class II area.

Using the CALPUFF air dispersion model, the applicant performed a regional haze analysis for the Everglades National Park PSD Class I area. The model predicted a 24-hour visibility degradation of 1.38% due to the project, which is below the criteria level of 5%. The conclusion is that the project will not adversely impact the background visibility at the Everglades National Park. No significant impacts to the air quality related values (AQRV) in the Everglades National Park are expected due to this project.

**TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION**

**Air Quality Impacts Related to Growth Due to the Project**

There will be no growth associated with this project because it involves the modification of an existing operation.

**15. PRELIMINARY DETERMINATION**

Although not required, the Department offers the following information to show that the proposed changes do not adversely affect the original PSD applicability review for the cogeneration plant. The following table summarizes the original baseline emissions, the proposed new potential emissions, and the resulting PSD applicability. Again, this information is provided *only for comparison purposes* and is not required.

Table 13A. Comparison of PSD Applicability - Original Project to Proposed Revision

| Pollutant       | Baseline <sup>1</sup><br>TPY | PTE by PSD Permit <sup>2</sup> |              | Net Emissions Change <sup>3</sup> |              | PSD SER<br>TPY | Retroactive PSD? <sup>4</sup> |                  |
|-----------------|------------------------------|--------------------------------|--------------|-----------------------------------|--------------|----------------|-------------------------------|------------------|
|                 |                              | Original, TPY                  | Revised, TPY | Original, TPY                     | Revised, TPY |                | Original                      | Revised          |
| CO              | 10388.0                      | 2012.5                         | 2012.5       | -8376                             | -8376        | 100            | No                            | No               |
| SO <sub>2</sub> | 748.3                        | 1154.3                         | 345.0        | +406                              | -403         | 40             | Yes                           | No               |
| Lead            | 0.280                        | 0.17                           | 0.863        | -0.11                             | +0.583       | 0.600          | No                            | No               |
| Mercury         | 0.026                        | 0.0300                         | 0.031        | +0.004                            | +0.005       | 0.100          | No                            | No               |
| Fluorides       | 0.04                         | 21.2                           | 4.03         | +21                               | +3.99        | 3              | Yes <sup>5</sup>              | Yes <sup>5</sup> |
| SAM             | 22.40                        | 34.6                           | 20.7         | +12                               | -1.7         | 7              | Yes                           | No               |

Notes:

1. Baseline emissions represent actual annual emissions from the original sugar mill boilers.
2. The annual potential to emit (PTE) in tons per year (TPY) is based on the original PSD permit issued in 1993 and the revised permit for the currently proposed project.
3. The net emissions change is the difference between the potential permitted emissions and the baseline emissions. Beryllium is omitted from the table because it is no longer a PSD pollutant.
4. This represents the PSD applicability for the original project and a “retro-active” PSD applicability based on the proposed revisions.
5. Stack testing indicates that fluoride emissions when firing bagasse are higher than originally believed, which would result in higher baseline fluoride emissions. Therefore, it is possible that neither the original project nor the currently proposed project would be subject to PSD.

As indicated in the table above, the original project was subject to PSD for emissions of sulfuric acid mist, sulfur dioxide, beryllium, and fluorides. Beryllium is no longer a PSD pollutant. If the revised PSD permit were proposed in 1993, it would have been subject to PSD only potentially for fluorides. This is because the project would avoid PSD through netting, which would show emissions reductions for sulfur dioxide and sulfuric acid mist without coal firing.

Due to the difficulties with equipment problems during construction, the extended shakedown period, initial operation, and the lawsuit previously discussed, the cogeneration plant only recently surpassed 24 months of continual commercial operation. During the initial period of operation, the boilers did not perform as designed and the operators were forced to re-define the performance curve for each cogeneration boiler. In addition, more detailed information was compiled regarding the actual biomass fuels being fired. Some of this information indicates that inaccurate assumptions were made in the initial permit application for fuel contaminants such as sulfur, lead, mercury, and fluorides. In addition, it is noted that the original project was subject to PSD review for sulfur dioxides, sulfuric acid mist, beryllium, and fluorides due to the coal firing capabilities requested. Because no coal handling facilities have ever been installed and coal has never been fired, coal is being removed as an authorized fuel. The Department did consider the numerous difficulties and better available information in the review of the applicant’s requests. The performance of the cogeneration boilers, as well as the biomass fuels, is now well defined for this plant.

## TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

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The Department makes a preliminary determination that the proposed project will comply with all applicable state and federal air pollution regulations as conditioned by the draft permit. This determination is based on a technical review of the complete PSD application, reasonable assurances provided by the applicant, the draft determinations of Best Available Control Technology (BACT), review of the Air Quality Analysis, and the revised specific conditions of the draft permit. Cleve Holladay is the project meteorologist responsible for reviewing and validating the Air Quality Analysis for the project. Jeff Koerner is the project engineer responsible for reviewing the application, recommending the BACT determinations, and drafting the permit. Additional details of this analysis may be obtained by contacting the project engineer at the Department's Bureau of Air Regulation at Mail Station #5505, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400.

**REFERENCES**

1. Original Permit No. PSD-FL-196 dated September 27, 1993.
2. Draft paper titled, "Estimating Emissions from Generation and Combustion of Waste Wood" by the Wood Waste and Furniture Emissions Task Force Prepared for the North Carolina DENR dated July 1998.
3. Supplement G to the 5<sup>th</sup> edition of AP-42 (EPA's emission factor reference document) titled, "Wood Residue Combustion in Boilers" dated July 2001.
4. 1987 book titled, Natural Gas Applications for Air Pollution Control by the American Gas Association; Page 288; heading titled, "Wood Wastes"; Chapter titled, "Natural Gas Use to Facilitate Coal and Waste Combustion".
5. Article titled, "Technologies for Reducing Emissions in Coal-Fired Power Plants" from Energy Issues periodical dated August 19, 1997, Issue No. 14.
6. Technology Status Report titled, "Flue Gas Desulphurisation (FGD) Technologies" from Cleaner Coal Technology Programme periodical dated March 2000.
7. Project Summary titled, "Controlling SO<sub>2</sub> Emissions: An Analysis of Technologies" from EPA Report dated November 2000.



## TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

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### ATTACHMENT A. PERMITTING HISTORY THROUGH OCTOBER 2001

**Air Permit No. PSD-FL-196:** Department issued original PSD permit on 09/27/93.

**Project No. 0990332-001-AC (PSD-FL-196A):** OkCP requested a limit on yard trash of 30% by weight to avoid most of the applicable requirements of 40 CFR 60, Subpart Ea. Department issued modification on 02/20/96, which added specific condition 12A.

**Project No. 0990332-002-AC (PSD-FL-196B):** OkCP requested an extension of time for the simultaneous operation of the cogeneration boilers with the sugar mill boilers in order to perfect the steam interconnection. Department issued modification on 06/14/96. Specific condition nos. 17 and 18 were revised to extend simultaneous operation beyond the first year of commercial startup of the cogeneration boilers to April 1, 1997. The permit required the sugar mill boilers to be rendered incapable of operation no later than January 1, 1999.

**Project No. 0990332-003-AC (PSD-FL-196C):** OkCP requested approval to fire tire-derived fuel. Department issued modification on 01/22/97 to allow for a demonstration period to collect emissions data.

**Project No. 0990332-004-AC (PSD-FL-196D):** OkCP requested a revision to the emission standard and testing requirements for sulfuric acid mist. Department issued modification on 04/18/97, which retained the emission standard, but revised the test method to 8 (modified).

**Project No. 0990332-005-AC (PSD-FL-196E):** OkCP requested an extension of time for the simultaneous operation of the cogeneration boilers with the sugar mill boilers in order to perfect the steam interconnection. Department issued modification on 04/05/97. Specific condition nos. 17 and 18 were revised to extend simultaneous operation to April 1, 1998. The permit required the sugar mill boilers to be rendered incapable of operation no later than January 1, 1999.

**Project No. 0990332-006-AC (PSD-FL-196F):** OkCP requested a modification of the emissions standards for carbon monoxide, lead, and mercury. Department issued modification on 10/24/97.

**Project No. 0990332-007-AC (PSD-FL-196G):** OkCP requested amendment to specific condition #11 to clarify the performance test schedule. Department issued modification on 05/08/97.

**Project No. 0990332-008-AC (PSD-FL-196H):** OkCP requested a revision to the 24-hour rolling average for determining peak electrical generation. Application was withdrawn on 02/03/97.

**Project No. 0990332-009-AC (PSD-FL-196I):** OkCP requested an extension of time for the simultaneous operation of the cogeneration boilers with the sugar mill boilers in order to provide additional time to ensure that the interconnections (bagasse fuel and steam systems) were commercially and operationally reliable. Department issued modification on 06/16/98. Specific condition nos. 17 and 18 were revised to extend simultaneous operation to April 1, 2000. The permit required the sugar mill boilers to be rendered incapable of operation no later than April 1, 2001.

**Project No. 0990332-010-AC (PSD-FL-196J):** OkCP requested a revision to the CO emissions standard. Department issued modification of the CO averaging period on 06/24/99.

**Project No. 0990332-011-AC (PSD-FL-196K):** OkCP requested a modification to extend operation of Okeelanta Corporation's sugar mill boilers as standby units for the cogeneration boilers due to litigation with FPL. Department issued modification on 11/06/00.

**Project No. 0990332-012-AC:** OkCP requested approval to install particulate dust collectors prior to the electrostatic precipitators. Department issued approval letter on 12/22/99. Approval incorporated into modification PSD-FL-196K.

**Project No. 0990332-013-AC (PSD-FL-196L):** OkCP requested to add natural gas as a supplemental fuel to the biomass boilers. Department issued Final Permit in January 2001.

**Project No. 0990332-014-AC (PSD-FL-196M):** OkCP requested modification of the CO and SO<sub>2</sub> emissions standards. This is the current project under review.

**Project No. 0990332-015-AC (PSD-FL-196N):** OkCP requested modification to change restriction from 74.9 "Gross" MW Output to 74.9 "Net" MW Output. Department issued Final Permit in May 2001.

**TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION**

**ATTACHMENT B. BACT FOR SIMILAR SOURCES FROM THE EPA RACT/BACT/LAER CLEARINGHOUSE**

| RBLC ID | Date   | Facility Name                    | Boiler Type/Fuel | MMBtu/hour | CO, lb/MMBTU | SO <sub>2</sub> , lb/MMBtu  | Add-On Controls Equipment |
|---------|--------|----------------------------------|------------------|------------|--------------|-----------------------------|---------------------------|
| AL-0047 | 1990   | Alabama River Pulp, Co.          | wood             | 266        | 0.3          | 0.3                         | None                      |
| AL-0099 | 1997   | Mead Container Board             | wood, sludge     | 622        | 0.4          | 0.02                        | None                      |
| CT-0007 | > 1991 | Bio-Gen Tarrington Partnership   | wood             | 208.5      | 0.29         | 0.10                        | None                      |
| LA-0074 | 1991   | Willamette Industries, Inc.      | wood             | 940        | 0.30         | 0.008                       | None                      |
| ME-0013 | 1991   | Beaver-Livermore Falls           | Wood, stoker     | 533.6      | 0.30         | 0.023                       | None                      |
| MI-0139 | 1989   | Hillman Limited Partners         | wood             | 300        | 0.35         | 0.018                       | None                      |
| MI-0147 | 1991   | Cogeneration Michigan, Inc.      | wood             | 293        | 0.35         | 0.017                       | SNCR                      |
| MI-0151 | 1990   | Grayling Generating Station L.P. | wood             | 450/523    | 0.40         | ND                          | SNCR                      |
| MI-0180 | 1992   | Cogeneration Michigan, Ass.      | wood             | 523        | 0.40         | ND                          | SNCR                      |
| MT-0005 | 1995   | Plum Creek Mfg. – Columbia Falls | wood             | 292.4      | 1.6          | ND                          | None                      |
| MT-0007 | 1997   | Plum Creek Mfg. - Evergreen      | hogged wood      | 225        | 2.25         | ND                          | None                      |
| NH-0003 | 1990   | Pinetree Power, Inc. - Bethlehem | wood             | 289        | 0.50         | ND                          | None                      |
| NH-0004 | 1990   | Pinetree Power, Inc. Tamworth    | wood             | 404        | 0.50         | ND                          | None                      |
| NY-0055 | 1994   | KES Chateauguay Project          | wood             | 275        | 0.35         | 0.03                        | Low sulfur fuels          |
| VA-0183 | 1992   | Multitrade Limited Partnership   | wood             | 373.7      | 0.35         | 0.016                       | SNCR                      |
| VT-0004 | 1990   | Ryegate Wood Energy Co.          | wood             | 300        | 0.30         | ND                          | SNCR                      |
| WA-0276 | 1993   | Scott Paper Company              | wood             | 718        | 0.50         | 0.097, 365-day rolling avg. | SNCR                      |

**Summary of CO Standards**

0.290 = minimum standard  
 2.250 = maximum standard  
 0.555 = average of standards  
 1.730 = 95th percentile  
 0.35 = median of standards

**Summary of SO<sub>2</sub> Standards**

0.008 = minimum standard  
 0.300 = maximum standard  
 0.060 = average of standards  
 0.210 = 95th percentile  
 0.022 = median of standards

# DRAFT PERMIT

## PERMITTEE

New Hope Power Partnership  
Okeelanta Cogeneration Plant  
8001 U.S. Highway 27 South (P.O. Box 9)  
South Bay, FL 33493

*Authorized Representative:*

Mr. Rodney Williams, Plant Manager

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| Air Permit No. PSD-FL-196M<br>Project No. 0990332-014-AC<br>Okeelanta Cogeneration Plant<br>SIC No. 4911<br>Palm Beach County |
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## PROJECT AND LOCATION

The original PSD permit authorized the construction of a biomass and fossil fuel-fired 74.9 MW cogeneration plant adjacent to Okeelanta Corporation's sugar mill. The original PSD permit expired on July 1, 1996. The permittee obtained several previous permit modifications that extended some construction-related activities as well as revising specific conditions of the permit. This modification revises: emissions limiting and monitoring provisions for emissions of carbon monoxide, fluorides, lead, mercury, sulfur dioxide, and sulfuric acid mist; removes the authority to fire low sulfur coal as a backup fuel; and removes the requirement to conduct stack testing for chromium, copper and arsenic. In addition, this modification updates the permit format and incorporates all previous permit modifications into a single document.

The cogeneration plant is located off U.S. Highway 27 and approximately six miles south of South Bay in Palm Beach County, Florida. The UTM coordinates are Zone 17, 524.90 km East, and 2940.10 km North. The map coordinates are latitude 26° 35' 00" N and longitude 80° 45' 00" W.

## STATEMENT OF BASIS

This PSD air pollution construction permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.), and Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.) and Title 40, Part 52, Section 21 of the Code of Federal Regulations. Specifically, this permit is issued pursuant to the requirements for the Prevention of Significant Deterioration (PSD) of Air Quality, Rule 62-212.400, F.A.C. The permittee is authorized to operate the installed equipment in accordance with the conditions of this permit, the conditions of the Title V operation permit, and as described in the application, approved drawings, plans, and other documents on file with the Department.

## CONTENTS

- Section I. General Information
- Section II. Administrative Requirements
- Section III. Emissions Units Specific Conditions
- Section IV. Appendices

(DRAFT)

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Howard L. Rhodès, Director  
Division of Air Resources Management

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Effective Date

## SECTION I. GENERAL INFORMATION (Draft)

### FACILITY DESCRIPTION

The facility consists of two adjacent plants. Okeelanta Corporation operates a sugar mill (SIC No. 2061) and sugar refinery (SIC No. 2062) including packaging and transshipment activities. New Hope Power Partnership operates a 74.9 net MW cogeneration plant that provides process steam for the sugar mill/refinery and generates electricity for sale to the power grid (SIC 4911). This permit addresses the cogeneration plant, which consists of the following emissions units.

| ID  | Emission Unit Description                  |
|-----|--|
| 001 | Cogeneration Boiler A (715 MMBtu per hour) |
| 002 | Cogeneration Boiler B (715 MMBtu per hour) |
| 003 | Cogeneration Boiler C (715 MMBtu per hour) |
| 004 | Material handling and storage              |

### REGULATORY CLASSIFICATION

Title III: Based on the Title V operation permit, the facility may have emissions of hazardous air pollutants (HAPs) at levels greater than the major source thresholds.

Title IV: Based on the Title V operation permit, the facility does not operate any units subject to the acid rain provisions of the Clean Air Act.

Title V: Because potential emissions of at least one regulated pollutant exceed 100 tons per year, the facility is a Title V major source of air pollution in accordance with Chapter 213, F.A.C. Regulated pollutants include pollutants such as carbon monoxide (CO), nitrogen oxides (NO<sub>x</sub>), particulate matter (PM/PM<sub>10</sub>), sulfur dioxide (SO<sub>2</sub>), and volatile organic compounds (VOC).

PSD: The facility is located in an area currently designated as "attainment" or "unclassifiable" for each pollutant subject to a National Ambient Air Quality Standard. The cogeneration plant is considered a "fossil fuel fired steam electric plant of more than 250 million BTU per hour of heat input", which is one of the 28 PSD source categories with the lower PSD applicability threshold of 100 tons per year. Potential emissions of at least one regulated pollutant exceed 100 tons per year. Therefore, the facility is classified as a major source of air pollution with respect to Rule 62-212.400, F.A.C., the Prevention of Significant Deterioration (PSD) of Air Quality.

PPSC: The facility is not subject to Chapter 62-17, F.A.C. for Power Plant Site Certification because it produces less than 75 MW of steam-generated electrical power.

NSPS: The facility operates emissions units subject to the New Source Performance Standards of 40 CFR 60, including Subparts Da and Db (boilers) and Subpart Kb (fuel storage tanks).

### PERMITTING AUTHORITY

All documents related to applications for permits to construct, operate or modify an emissions unit shall be submitted to the Bureau of Air Regulation of the Florida Department of Environmental Protection (DEP) at 2600 Blair Stone Road (MS #5505), Tallahassee, Florida 32399-2400.

### COMPLIANCE AUTHORITY

All documents related to compliance activities such as reports, tests, and notifications shall be submitted to the Air Pollution Control Section of the Palm Beach County Health Department at P.O. Box 29, West Palm Beach, Florida 33402-0029. Copies of all such documents shall be submitted to the Air Resources Section at the South District Office of the Florida Department of Environmental Protection (DEP) at 2295 Victoria Avenue, Suite 364 in Fort Myers, Florida 33902-2549.

## SECTION I. GENERAL INFORMATION (Draft)

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### APPENDICES

The following Appendices are attached in Section IV as part of this permit.

Appendix A. Citation Format

Appendix B. General Conditions

Appendix C. Standard Requirements

Appendix D. Final BACT Determinations

Appendix E. Continuous Monitor Requirements

### RELEVANT DOCUMENTS

The documents listed below are not a part of this permit; however, they are specifically related to this permitting action and are on file with the Department.

- Initial air construction Permit No. PSD-FL-196 issued September 27, 1993 and all subsequent modifications.
- Permit application received on January 2, 2001 and all related correspondence to make complete.
- Initial draft permit package issued on (Draft).

### CITATION FORMAT

Appendix A of this permit describes the format used to cite applicable rules and regulations as well as previous permitting actions.

## SECTION II. ADMINISTRATIVE REQUIREMENTS (Draft)

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1. General Conditions: The permittee is subject to, and shall operate under, the attached General Conditions listed in Appendix B of this permit. General Conditions are binding and enforceable pursuant to Chapter 403 of the Florida Statutes. [Rule 62-4.160, F.A.C.]
2. Applicable Regulations, Forms and Application Procedures: Unless otherwise indicated in this permit, the construction and operation of the subject emissions unit shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of: Chapter 403 of the Florida Statutes (F.S.); Chapters 62-4, 62-204, 62-210, 62-212, 62-213, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.); and the Title 40, Parts 51, 52, and 60 of the Code of Federal Regulations (CFR), adopted by reference in Rule 62-204.800, F.A.C. The terms used in this permit have specific meanings as defined in the applicable chapters of the Florida Administrative Code. The permittee shall use the applicable forms listed in Rule 62-210.900, F.A.C. and follow the application procedures in Chapter 62-4, F.A.C. Issuance of this permit does not relieve the permittee from compliance with any applicable federal, state, or local permitting or regulations. [Rules 62-204.800, 62-210.300 and 62-210.900, F.A.C.]
3. Permit Expiration: The original expiration date for the construction of this plant was July 1, 1996. However, construction of the cogeneration plant is complete and commercial operation has commenced. This revised permit does not authorize any additional construction.
4. Effective Date: The effective date of the modified PSD permit is specified on the placard page (page 1).
5. Relaxations of Restrictions on Pollutant Emitting Capacity: If a previously permitted facility or modification becomes a facility or modification which would be subject to the preconstruction review requirements of this rule if it were a proposed new facility or modification solely by virtue of a relaxation in any federally enforceable limitation on the capacity of the facility or modification to emit a pollutant (such as a restriction on hours of operation), which limitation was established after August 7, 1980, then at the time of such relaxation the preconstruction review requirements of this rule shall apply to the facility or modification as though construction had not yet commenced on it. [Rule 62-212.400(2)(g), F.A.C.]
6. New or Additional Conditions: For good cause shown and after notice and an administrative hearing, if requested, the Department may require the permittee to conform to new or additional conditions. The Department shall allow the permittee a reasonable time to conform to the new or additional conditions, and on application of the permittee, the Department may grant additional time. [Rule 62-4.080, F.A.C.]
7. Modifications: No emissions unit or facility subject to this permit shall be constructed or modified without obtaining an air construction permit from the Department. Such permit shall be obtained prior to beginning construction or modification. [Rules 62-210.300(1) and 62-212.300(1)(a), F.A.C.]
8. Title V Permit Revision: Within 180 days of the effective date of this modified PSD permit, the permittee shall submit an application for a revised Title V permit to incorporate the changes and operate the cogeneration plant. To apply for a revised Title V operation permit, the applicant shall submit the appropriate application form, compliance test results, and such additional information as the Department may by law require. The application shall include a Compliance Assurance Monitoring Plan. The application shall be submitted to the Department's Bureau of Air Regulation with copies to each Compliance Authority. [Rules 62-4.030, 62-4.050, 62-4.220, and Chapter 62-213, F.A.C.]

### SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS (Draft)

This section of the permit addresses the following emissions units.

#### **Emissions Units 001, 002, and 003: Cogeneration Boilers A, B, and C**

*Description:* Each unit is a biomass-fired spreader stoker steam boiler manufactured by Zurn and designed to produce approximately 455,400 pounds per hour of steam at 1500 psig and 975° F.

*Fuels and Capacity:* The primary fuel is biomass (715 MM Btu per hour), which includes bagasse from the adjacent sugar mill and clean wood material delivered to the plant by area subcontractors. Auxiliary fuels include natural gas (605 MMBtu per hour) and very low sulfur distillate oil (490 MMBtu per hour).

*Controls:* Pollution control equipment includes low-NOx burners for gas firing, a selective non-catalytic reduction system to reduce nitrogen oxides emissions, mechanical dust collectors and an electrostatic precipitator to reduce particulate matter emissions, and an activated carbon injection system to reduce potential mercury emissions. Good operating practices and the efficient combustion of clean, low-sulfur fuels minimizes emissions of carbon monoxide, sulfuric acid mist, sulfur dioxide, and volatile organic compounds.

*Stack Parameters:* Exhaust gases exit a 10 foot diameter stack that is at least 199 feet tall and with a volumetric flow rate of approximately 246,000 acfm at 295° F.

**Emissions Unit 004: Material handling and storage** including unloading operations, stockpiles, transfer operations, conveyors, screens, crushers, hoppers, silos, and storage tanks.

#### **CONSTRUCTION DETAILS**

1. **Generating Capacity:** Construction of the proposed cogeneration plant shall reasonably conform to the plans described in the application. The plant shall be designed, constructed, and operated such that the generating capacity does not exceed 74.9 net megawatt (MW) based on a 1-hour average. The owner or operator shall not modify the cogeneration plant in any way that would cause the plant to exceed the limit on maximum net generating capacity. The hourly average net generation rate shall be recorded and retained for at least 5 years.
2. **Boiler Design:** The cogeneration boilers shall consist of spreader stoker units designed to fire biomass as the primary fuel with pipeline-quality natural gas and distillate oil as auxiliary fuels. Natural gas and distillate oil are fired at startup, to supplement biomass fuel, and for periods when the biomass fuel supply is interrupted. No other fuels are authorized. {Permitting Note: Each boiler was originally designed to fire low sulfur coal as an emergency backup fuel, but no transfer, crushing, or storage systems were ever installed. The permittee shall apply for a permit modification before firing any other fuel.}
3. **Stack:** Each boiler shall have an individual stack that is at least 199 feet tall. The permanent stack sampling facilities for each stack must comply with Rule 62-297.345, F.A.C.
4. **Process Monitors:** Each boiler shall be equipped with instruments to measure the fuel feed rate, heat input, steam production, steam pressure, and steam temperature. Appendix E identifies minimum requirements for monitoring equipment.
5. **Control Equipment:** Each boiler shall be equipped with:
  - Low-NOx natural gas burners rated for no more than 0.15 pounds of NOx per mmBTU of heat input. The preliminary auxiliary burner design indicates that a single burner (150 MMBtu/hour, nominal) will be installed in each corner of each boiler for a total of four burners; however this is subject to change.
  - Mechanical dust collectors consisting of four, large diameter, multi-tube modules with airfoil vanes or equivalent equipment. The mechanical dust collectors shall be installed and maintained as pre-control devices prior to each electrostatic precipitator and designed for a removal efficiency of at least 85% of the particulate matter greater than 10 microns in size (assuming a specific gravity of 2.00).
  - An electrostatic precipitator (ESP) designed for at least 98 percent removal of particulate matter.

### SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS (Draft)

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- A selective non-catalytic reduction (SNCR) system designed for at least 40 percent removal of NO<sub>x</sub>.
  - A carbon injection system (or equivalent) for potential control of mercury emissions.
6. Continuous Monitors: For each cogeneration boiler, the permittee shall install, calibrate, maintain, and operate continuous emissions monitors (CEMS) and continuous opacity monitors (COMS) to measure and record emissions of carbon monoxide (CO), nitrogen oxides (NO<sub>x</sub>), opacity, oxygen (O<sub>2</sub>), and sulfur dioxide (SO<sub>2</sub>) in a manner sufficient to demonstrate compliance with the standards of this permit. The opacity monitor shall be placed in the ductwork between the electrostatic precipitator and the stack or in the stack. Appendix E identifies minimum requirements for monitoring systems.
7. Good Combustion Practices: An oxygen meter shall be installed for each unit to continuously monitor a representative sample of the flue gas. The oxygen monitor shall be used with automatic feedback or manual controls to continuously optimize air/fuel ratio parameters. Depending on the fuel quality and existing combustion conditions, the operator shall provide sufficient excess air to ensure good combustion within the boiler. The application to revise the Title V operation permit shall identify “good combustion practices” for the cogeneration boilers to minimize pollutant emissions during startup, operation, and shutdown. The document “Use of Flue Gas Oxygen Meter as BACT for Combustion Controls” shall be used as a guide. Good combustion controls shall also include the following:
- Maintain improved combustion controls to provide efficient tuning of air/fuel control instrumentation.
  - Maintain rotary pocket-style wood feeders with efficient air seal to minimize intrusion of ambient air.
  - Maintain effective water level controls in bottom ash system to prevent intrusion of ambient air.
  - Mix biomass fuel to provide a consistent fuel blend.
  - Maintain the flue gas oxygen content to provide efficient combustion for the existing conditions.
  - When necessary to enhance poor combustion, reduce the biomass feed rate below the maximum rate.
  - When necessary to enhance poor combustion, co-fire natural gas or distillate oil.
8. O&M Plans: The application to revise the Title V operation permit shall include an operation and maintenance plan consisting of at least the following items.
- a. For the cogeneration boilers, electrostatic precipitators (ESP), selective non-catalytic reduction (SNCR) systems, activated carbon injection (ACI) mercury control systems, and silo fabric filters, identify: the capacities, design efficiencies, pollutant emission rates, general operational description of equipment, key design and operating parameters, expected operating range of each key parameter, monitoring of key parameters, frequency of monitoring (instantaneous, continual, or continuous), and actions taken to return key parameters to within the expected operating ranges. The plan shall also specify good operating practices to promote efficient boiler combustion, startup and shutdown procedures for the boilers and control systems to minimize emissions, and precautions to prevent fugitive particulate matter emissions. {Permitting Note: Operation outside of the specified operating range for any monitored parameter would not be a violation by itself. However, continued operation outside of a specified operating range without corrective action may be considered circumvention of the air pollution control equipment or methods.}
  - b. For the selective non-catalytic reduction (SNCR) systems identify an alternate NO<sub>x</sub> emissions control plan based on previous monitoring data that shall be implemented in case the NO<sub>x</sub> monitoring system is down. The plan shall identify the minimum urea injection rate that has demonstrated continuous compliance with the NO<sub>x</sub> emissions standard at various load conditions.
9. Materials Handling Controls: For the fly ash handling and mercury control system reactant storage systems:
- a. The particulate matter filter control system for the storage silos shall be designed to achieve an outlet dust loading of no greater than 0.01 grains per actual cubic feet of exhaust.
  - b. The fly ash handling system (including transfer points and storage bin) shall be enclosed. The ash shall



### SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS (Draft)

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be wetted in the ash conditioner to minimize fugitive dust prior to discharging to the disposal bin.

#### OPERATIONAL RESTRICTIONS

10. Permitted Capacity: The cogeneration boilers shall be constructed and operated in accordance with the capabilities and specifications described in the application. The maximum heat input rate to each cogeneration boiler shall not exceed 715 MMBtu/hr when burning 100 percent biomass, 605 MMBtu/hr when burning 100 percent natural gas, and 490 MMBtu/hr when burning 100 percent very low sulfur distillate oil. The maximum heat input to the entire plant (total for all three boilers combined) shall not exceed  $11.5 \times 10^{12}$  Btu during any consecutive 12-month period. The steam production of each boiler shall not exceed an average of 455,418 pounds per hour at 1,500 psig and 975°F.
11. Primary Fuel: The primary fuel for the plant shall be biomass, which shall consist of bagasse and authorized wood material. Bagasse is the fibrous vegetative residue remaining after the sugarcane milling process. Authorized wood material is clean construction and demolition wood debris, yard trash, land clearing debris, and other clean cellulose and vegetative matter. Each cogeneration boiler shall combust no more than 30% by weight yard waste (yard trash) on a calendar quarter basis that is defined as a municipal solid waste (MSW) in 40 CFR 60.51a. The biomass fuel used at the cogeneration plant shall not contain hazardous substances, hazardous wastes, biomedical wastes, or garbage. The fuel used at the cogeneration plant 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 material or similar vegetative matter that has been delivered to the plant 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 material and vegetative matter.

The permittee shall design and implement a management and testing program for the wood material and other materials delivered to the plant 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. 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. Based on the analysis of a composite sample, wood material containing more than 70.7 ppm arsenic or 83.3 ppm chromium or 62.8 ppm copper shall not be burned. Fuel scheduled for burning shall be inspected daily. At a minimum, the fuel management program shall include the following sampling and analyses:

- a. At least twice each month, the permittee shall have separate analyses conducted on an as-fired wood sample and an as-fired bagasse sample for the following: heating value (modified ASTM D3286, Btu/lb, dry), carbon content (modified ASTM D5373, percent by weight, dry), sulfur content (modified ASTM D4239 Method C, percent by weight, dry), and moisture content (modified ASTM D3173, percent by weight). In addition the wood sample shall be analyzed for copper, chromium, and arsenic in accordance with ASTM Methods 3050/6010 and reported in ppm by weight, dry. Samples shall be taken at least two weeks apart.
- b. At least once each month, the permittee shall have an analysis conducted on a composite sample of fly ash and bottom ash for arsenic, copper, and chromium in accordance with the procedures described in EPA Method SW-846, *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (40 CFR 261, Appendix III). The analytical results from ash testing shall be used in conjunction with those from the as-fired wood samples to evaluate the effectiveness of the fuel management program in removing chemically treated wood from the biomass fuel. The permittee shall dispose of all ash generated on site in accordance with the applicable state and federal regulations.
- c. Analytical results of the as-fired biomass fuels and ash sampling shall be summarized and provided in the quarterly report to the Compliance Authority.

The ash and fuel management program shall become part of the Title V operation permit.

### SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS (Draft)

12. Auxiliary Fuel: The cogeneration boilers shall fire only very low sulfur distillate oil and pipeline-quality natural gas as auxiliary fuels. Distillate oil shall be new No. 2 oil with a maximum sulfur content of 0.05 percent sulfur by weight as determined by the appropriate test method listed in 40 CFR 60.17. "New" oil is oil that has been refined from crude oil and that has not been used in any manner that may contaminate it. Each boiler may startup solely on pipeline-quality natural gas or very low sulfur distillate oil.
13. Fossil Fuel Limitation: The firing of fossil fuels (distillate oil and natural gas) shall be less than 25 percent of the total heat input to each cogeneration boiler during any calendar quarter.
14. Fuel Records: The permittee shall maintain a daily log of the amounts and types of fuels used. The amount, heating value, and sulfur content of each fuel oil delivery shall be kept in a log for at least five years. For each calendar month, the actual monthly SO<sub>2</sub> emissions and the 12-month rolling total SO<sub>2</sub> emissions shall be determined and kept in a log.
15. Emergency Standby: The existing sugar mill boilers shall comply with the following requirements.
  - a. Sugar mill boiler Nos. 4, 5, 6, 10, 11, 12, 14, and 15 may be retained for emergency standby operation until April 1, 2002. These boilers shall only operate in the event of electrical or mechanical failure of all three of the cogeneration boilers. Simultaneous operation of any of these sugar mill boilers with any of the cogeneration boilers is prohibited. Sugar mill boiler Nos. 4, 5, 6, 10, 11, 12, 14, and 15 shall be permanently shutdown and rendered incapable of operation no later than October 1, 2002.
  - b. Each sugar mill boiler shall comply with its most recent air construction and operation permit, including all emissions performance, testing, and monitoring requirements as well as any applicable Alternate Sampling Procedures approved by the Department. The sugar mill boilers shall only fire fuels approved in the most recent permits.
16. Auxiliary Boiler: Sugar mill boiler No. 16 shall be operated in accordance with revised Permit No. PSD-FL-169A and the subsequently revised Title V operation permit.

#### EMISSIONS LIMITING STANDARDS

17. Emissions Standards: Based on the maximum permitted heat input to each cogeneration boiler, stack emissions shall not exceed the standards specified in the following table:

| Pollutant  | Averaging Period  | Emissions Standards Per Boiler <sup>j</sup>                                 |       |
|--|---|---|-------|
|  |   | lb/MMBtu  | lb/hr |
| Carbon Monoxide (CO) <sup>a</sup>                      | 30-day rolling CEMS avg.  | 0.50  | 357.5 |
|  | 12-month rolling CEMS avg.  | 0.35  |       |
| Nitrogen Oxides (NO <sub>x</sub> ) <sup>b</sup>        | 30-day rolling CEMS avg.  | 0.15  | 107.3 |
| Sulfur Dioxide (SO <sub>2</sub> ) <sup>c</sup>         | 24-hour rolling CEMS avg.   | 0.20  | 143.0 |
|  | 30-day rolling CEMS avg.  | 0.10  |       |
|  | 12-month rolling CEMS avg.  | 0.06  |       |
| Stack Opacity <sup>d</sup>                             | 6-minute block COMS avg.<br>(Alternative: EPA Method 9)   | ≤ 20% opacity, except for one 6-minute block per hour that is ≤ 27% opacity |       |
| Particulate Matter (PM/PM <sub>10</sub> ) <sup>e</sup> | 3-run test avg.   | 0.03  | 21.5  |
| Volatile Organic Compounds (VOC) <sup>f</sup>          | 3-run test avg.   | 0.06  | 42.9  |
| Lead <sup>g</sup>                                      | 3-run test avg.   | 1.5 x 10 <sup>-04</sup>   | NA    |
| Mercury <sup>h</sup>                                   | 3-run test avg.   | 5.4 x 10 <sup>-06</sup>   | NA    |
| Fluorides <sup>i</sup>                                 | Fluoride emissions shall be minimized by firing biomass as the primary fuel with natural gas and very low sulfur distillate oil as auxiliary fuels. |   |       |

### SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS (Draft)

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- a. Compliance shall be determined by data collected from the required CO CEMS in terms of “lb/MMBtu of heat input”. The 30-day rolling average shall be determined by calculating the arithmetic average of all hourly emission rates for 30 successive boiler operating days and be consistent with the NO<sub>x</sub> monitoring requirements below. Compliance with the 12-month standard shall be based on the rolling average for each consecutive 12-month period.
- b. Compliance shall be determined by data collected from the required NO<sub>x</sub> CEMS in terms of “lb/MMBtu of heat input”. The 30-day rolling average shall be determined by calculating the arithmetic average of all hourly emission rates for 30 successive boiler operating days and the requirements of 40 CFR 60.13, 60.44a, 60.46a, 60.47a, 60.48a, and 60.49a. A boiler-operating day is any day in which any authorized fuel is fired.
- c. Compliance with the SO<sub>2</sub> standards shall be determined by data collected from the required SO<sub>2</sub> CEMS in terms of “lb/MMBtu of heat input”. The 24-hour average shall be determined by calculating the arithmetic average of all valid hourly emission rates for 24 successive boiler operating hours. The 30-day rolling average shall be determined by calculating the arithmetic average of all hourly emission rates for 30 successive boiler-operating days and the requirements of 40 CFR 60.13, 60.43a, 60.46a, 60.47a, 60.48a, and 60.49a. Compliance with the 12-month standard shall be based on the rolling average for each consecutive 12-month period. Valid SO<sub>2</sub> hourly averages shall not be excluded from any compliance average. {Permitting Note: Potential emissions of sulfuric acid mist are minimized by the effective control of SO<sub>2</sub> emissions with the firing of low sulfur fuels. For reporting purposes, sulfuric acid mist emissions shall be estimated as 6% of the total measured SO<sub>2</sub> emissions.}
- d. Continuous compliance with the opacity standard shall be determined by data collected from the required COMS in terms of “percent opacity” based on 6-minute block averages. Alternatively, compliance may also be determined by conducting EPA Method 9 observations.
- e. Compliance with the particulate matter standards shall be determined by the average of three test runs conducted in accordance with EPA Method 5. For purposes of reporting PM<sub>10</sub> emissions, it shall be assumed that all particulate matter emitted is PM<sub>10</sub>.
- f. Compliance with the VOC standards shall be determined by the average of three test runs conducted in accordance with EPA Method 25A based on propane. In addition, the permittee may choose to conduct EPA Method 18 concurrently with EPA Method 25A to deduct emissions of methane and ethane from the measured VOC emissions. Otherwise, all emissions measured by EPA Method 25A shall be considered “volatile organic compounds”.
- g. Compliance with the lead standards shall be determined by the average of three test runs conducted in accordance with EPA Method 12 or 29.
- h. Compliance with the mercury standards shall be determined by the average of three test runs conducted in accordance with EPA Method 101A or 29. Emissions in excess of this standard shall be a violation of the permit. In addition, if two or more cogeneration boilers exceed the annual mercury emission limit, the permittee shall reactivate the carbon injection system for all three units within 30 days of the stack test report due date. The minimum carbon injection rate shall be at least 7 pounds per hour. Within 60 days of the stack test report due date, the permittee shall submit to the permitting and compliance authorities a mercury testing protocol designed to establish an effective carbon injection rate to control mercury emissions. Within 60 days of receiving approval for the mercury testing protocol by the permitting authority, the permittee shall begin the approved testing program. At a minimum, the permittee shall submit a full engineering report summarizing the uncontrolled emissions, controlled emissions, fuels, operating capacities, and recommending a minimum activated carbon injection rate to control mercury emissions.
- i. This fuel specification is the BACT standard for fluoride emissions. {Permitting Note: For reporting purposes only, the fluoride emissions factor for firing biomass is  $1.9 \times 10^{-04}$  lb/MMBtu.

### SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS (Draft)

- j. Each boiler shall comply with the standards when firing any combination of authorized fuels. Required compliance tests shall be performed in accordance with the requirements of Condition No. 20. The cogeneration boilers are also subject to the new source performance standards (NSPS Subpart Da) for new electric utility steam generating units. These requirements include the general provisions of Subpart A in 40 CFR 60, as well as the following source-specific applicable requirements: 60.40a (Applicability and Designation of Affected Facility); 60.41a (Definitions); 60.42a (Standards for Particulate Matter); 60.43a (Standard for Sulfur Dioxide); 60.44a (Standard for Nitrogen Oxides); 60.46a (Compliance Provisions); 60.47a (Emissions Monitoring); 60.48a (Compliance Determination Procedures and Methods); and 60.49a (Reporting Requirements). The cogeneration boilers are also subject to Rule 62-296.405(2), F.A.C. (Fossil Fuel Steam Generators with more than 250 MMBtu per Hour of Heat Input), Rule 62-296.410, F.A.C. (Carbonaceous Fuel Burning Equipment), and Rule 62-296.570, F.A.C. (Reasonably Available Control Technology Requirements for Major VOC and NOx Facilities).

{Permitting Note: Appendix D identifies the final BACT determinations for the cogeneration boilers.}

18. Material Handling: The following conditions apply to the biomass, ash, and activated carbon handling facilities.
- a. All conveyors and conveyor transfer points shall be enclosed to preclude PM emissions (except those directly associated with the stacker/reclaimer, for which enclosure is operationally infeasible).
  - b. Water sprays, chemical wetting agents, and/or stabilizers shall be applied to storage piles, handling equipment, unenclosed transfer points, etc. during dry periods and as necessary to prevent visible emissions. When adding, moving or removing material from the storage pile, visible emissions of no more than 20% opacity are allowed.
  - c. 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. Visible emissions from any storage silo shall not exceed 5 percent opacity based on a 6-minute block average. A visible emissions test (EPA Method 9) shall be performed at least annually for each silo that is loaded with carbon during the federal fiscal year.

#### STARTUP, SHUTDOWN, AND MALFUNCTION

19. Startup, Shutdown, and Malfunction Requirements: The permittee shall comply with the following requirements regarding periods of startup, shutdown, and malfunction for each cogeneration boiler.
- a. *Definitions*
    - 1) Excess emissions are emissions of pollutants in excess of those allowed by any applicable air pollution rule of the Department, or by a permit issued pursuant to any such rule or Chapter 62-4, F.A.C. The term applies only to conditions that occur during startup, shutdown, or malfunction. [Rule 62-210.200(106), F.A.C.]
    - 2) Startup is the commencement of operation of a boiler which has shut down or ceased operation for a period of time sufficient to cause temperature, pressure, chemical or pollution control device imbalances, which may result in excess emissions. Periods of startup for each boiler shall end once steam generation reaches 150,000 pounds per hour. A cold startup is a startup after the boiler has been shutdown for 24 hours or more. A warm startup is a startup after the boiler has been shutdown for less than 24 hours.
    - 3) Shutdown is the cessation of the operation of a boiler for any purpose after steam generation drops below 150,000 pounds per hour.
    - 4) Malfunction is any unavoidable mechanical and/or electrical failure of air pollution control equipment or process equipment or of a process resulting in operation in an abnormal or unusual

### SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS (Draft)

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manner. [Rule 62-210.200(160), F.A.C.]

- b. *Prohibition:* Excess emissions which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during startup, shutdown, or malfunction shall be prohibited. Emissions data recorded during such preventable periods shall be included in the compliance averages. [Rule 62-210.700(4), F.A.C.]
- c. *Monitoring Data Exclusion:* Each continuous monitoring system shall operate and record data during all periods of operation (including startup, shutdown, and malfunction) except for continuous monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments. Provided the operators implement best operational practices to minimize the amount and duration of emissions, the following conditions apply. Pursuant to Rules 62-210.700(1) and (5), F.A.C., these conditions consider the variations in operation of the cogeneration boilers.
- 1) Natural gas or distillate oil shall be fired during startup prior to energizing the electrostatic precipitator (ESP). Once operating temperature recommended by the ESP manufacturer is maintained (approximately 340° F to 350 ° F), it shall be placed on line and the boiler shall comply with the opacity standard specified in Condition No. 17. The ESP shall be on line and functioning properly before firing any biomass. The opacity limit does not apply when the ESP is off line due to warm startup, cold startup, or shutdown. No more than twenty 6-minute block averages of opacity monitoring data shall be excluded in a 24-hour period due to documented malfunctions.
  - 2) Hourly CO and NO<sub>x</sub> emission rate values collected during startup, shutdown, or documented malfunction may be excluded from the 30-day and/or 12-month compliance averages. No more than six hourly emission rate values (CO or NO<sub>x</sub>) shall be excluded in a 24-hour period due to a cold startup. No more than three hourly emission rate values (CO or NO<sub>x</sub>) shall be excluded in a 24-hour period due to a warm startup. No more than two hourly emission rate values (CO or NO<sub>x</sub>) shall be excluded in a 24-hour period due to a malfunction. No more than two hourly emission rate values (CO or NO<sub>x</sub>) shall be excluded in a 24-hour period due to a shutdown. For each cogeneration boiler, no more than 183 hourly emission rate values shall be excluded during any calendar quarter.
  - 3) All valid hourly SO<sub>2</sub> emission rate values shall be included in all of the compliance averages. [40 CFR 60.46a and 60.49a]
  - 4) To “document” a malfunction, the operator shall notify the Compliance Authority within one working day of the malfunction by phone, facsimile, or electronic mail. The notification shall include the date and time of malfunction, a description of the malfunction and probable cause, steps taken to minimize emissions, and actions taken to correct the problem. [Rules 62-210.700(6) and 62-4.130, F.A.C.]
- d. *Reporting:* In conjunction with the annual operating report, the permittee shall provide a summary of startups, shutdowns, and malfunctions for each case in which monitoring data was excluded due to such events. For each boiler, the summary shall include the number of each event per year, the annual CO emissions for each event per year, and the annual NO<sub>x</sub> emissions for each event per year.
- [Rule 62-210.700, F.A.C.; Rule 62-4.070(3), F.A.C.; 40 CFR 60.8; and 40 CFR 60.46a]

#### COMPLIANCE METHODS AND REPORTING

##### 20. Stack Test Requirements

- a. *Initial Tests:* Within 90 days of the effective date of this permit, the permittee shall conduct compliance tests for emissions of lead, mercury, particulate matter, and volatile organic compounds. If conducted with the 12-month period prior to the effective date of this permit, previous emissions tests may be used to demonstrate compliance for these pollutants. The Department may require initial tests to be repeated if major physical or operational changes are made that affect main components such as the boiler, fuels,

**SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS (Draft)**

and/or pollution control equipment.

- b. *Annual Tests:* At least once during each federal fiscal year, the permittee shall conduct compliance tests for emissions of mercury, particulate matter, and volatile organic compounds.
- c. *Renewal Tests:* Within the 12-month period prior to submitting an application to renew the Title V air operation permit, the permittee shall conduct compliance tests for emissions of lead, mercury, particulate matter, and volatile organic compounds. Tests shall be conducted at five-year intervals.
- d. *Test Procedures:* The emission compliance tests shall be conducted in accordance with the provisions of Chapter 62-297, F.A.C., 40 CFR 60.46a (NSPS Subpart Da), and as summarized in Appendix C of this permit. The permittee shall notify the Compliance Authority in writing at least 30 days prior to any initial NSPS performance tests and at least 15 days prior to any other required tests. The biomass fuel feed for each test run shall consist of at least 45% wood materials by weight. Testing of emissions shall be conducted with each cogeneration boiler operating at permitted capacity, which is defined as a heat input rate between 643 and 715 MMBtu/hour and firing 100% biomass. If it is impracticable to test at permitted capacity, a cogeneration boiler may be tested at less than the maximum permitted capacity; in this case, subsequent operation is limited to 110 percent of the test rate until a new test is conducted. Within three days of completing a test below permitted capacity, the permittee shall provide written notification of the restricted operational capacity to the Compliance Authority. 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. [Rule 62-297.310(7)(a)9, F.A.C. and 40 CFR 60.7, 60.8]
- e. *Test Methods:* Compliance with the emission limits specified in this permit shall be demonstrated using EPA Methods, as contained in 40 CFR Part 60 (Standards of Performance for New Stationary Sources), or 40 CFR Part 61 (National Emission Standards for Hazardous Air Pollutants), or any other method as approved by the Department, in accordance with Rule 62-297.620, F.A.C.

| <b>EPA Method*</b> | <b>Description</b>  |
|--------------------|---|
| 1                  | Selection of sample site and velocity traverses   |
| 2                  | Stack gas flow rate when converting concentrations to or from mass emission limits  |
| 3A                 | Gas analysis when needed for calculation of molecular weight or percent O <sub>2</sub>  |
| 4                  | Moisture content when converting stack velocity to dry volumetric flow rate for use in converting concentrations in dry gases to or from mass emission limits   |
| 5                  | Particulate matter emissions  |
| 6 or 6C            | Sulfur dioxide emissions  |
| 7 or 7E            | Nitrogen oxide emissions  |
| 9                  | Visible emissions determination of opacity<br>{Permitting Note: Although each unit is required to monitor opacity with a COMS, visible observations may also be used to demonstrate compliance.}  |
| 10                 | Carbon monoxide emissions   |
| 12                 | Inorganic lead emissions  |
| 19                 | Calculation of sulfur dioxide and nitrogen oxide emission rates   |
| 25A                | Volatile organic compounds emissions<br>{Permitting Note: EPA Method 18 may be conducted concurrently with EPA Method 25A to deduct emissions of methane and ethane from the measured VOC emissions. Otherwise, all emissions measured by EPA Method 25A shall be considered "volatile organic compounds".} |
| 29                 | Multiple metals emissions   |
| 101A               | Particulate and gaseous mercury emissions   |

### SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS (Draft)

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No other methods may be used to demonstrate compliance unless prior written approval is received from the Department in accordance with a permit modification or an alternate sampling procedure issued pursuant to 62-297.620, F.A.C. Other applicable testing requirements are included in Appendix C of the permit. The permittee shall use CEMS and COMS data to demonstrate compliance with the emissions standards for CO, NO<sub>x</sub>, opacity, and SO<sub>2</sub>. [Rules 62-204.800 and 62-297.100, F.A.C.; 40 CFR 60, Appendix A]

21. Continuous Monitor Requirements: The permittee shall demonstrate compliance with the emissions standards for CO, NO<sub>x</sub>, opacity, and SO<sub>2</sub> based on data collected from the continuous emissions monitoring systems (CEMS) and continuous opacity monitoring systems (COMS) required for each cogeneration boiler. Appendix E specifies the minimum requirements for monitoring equipment.
22. Quarterly Reports: For each cogeneration boiler, the permittee shall submit a quarterly report for each required continuous emissions and opacity monitoring system in accordance with the requirements specified in Appendix E of this permit. The permittee shall also submit a quarterly summary of the fuel analyses, fuel usage, and equipment malfunctions. The fuel usage summary shall include the monthly heat input and the 12-month rolling total heat input for the cogeneration boilers. For each malfunction, the report shall identify the cause (if known), and corrective actions taken. The quarterly reports and summaries shall be submitted to the Compliance Authority no later than 30 days following each calendar quarter.
23. Annual Operating Report: The permittee shall submit an annual report that summarizes the actual operating rates and emissions from this facility. Annual operating reports shall be submitted to the Compliance Authority by March 1st of each year. [Rule 62-210.370(2), F.A.C.]

**SECTION IV. APPENDICES (DRAFT)**

**CONTENTS**

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- Appendix A. Citation Format
- Appendix B. General Conditions
- Appendix C. Standard Requirements
- Appendix D. Final BACT Determinations
- Appendix E. Continuous Monitor Requirements



**SECTION IV. APPENDIX A (DRAFT)**  
**CITATION FORMAT**

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*The following examples illustrate the format used in the permit to identify applicable permitting actions and regulations.*

**REFERENCES TO PREVIOUS PERMITTING ACTIONS**

Old Permit Numbers

*Example:* Permit No. AC50-123456 or Air Permit No. AO50-123456

*Where:* “AC” identifies the permit as an Air Construction Permit  
“AO” identifies the permit as an Air Operation Permit  
“123456” identifies the specific permit project number

New Permit Numbers

*Example:* Permit Nos. 099-2222-001-AC, 099-2222-001-AF, 099-2222-001-AO, or 099-2222-001-AV

*Where:* “099” represents the specific county ID number in which the project is located  
“2222” represents the specific facility ID number  
“001” identifies the specific permit project  
“AC” identifies the permit as an air construction permit  
“AF” identifies the permit as a minor federally enforceable state operation permit  
“AO” identifies the permit as a minor source air operation permit  
“AV” identifies the permit as a Title V Major Source Air Operation Permit

PSD Permit Numbers

*Example:* Permit No. PSD-FL-317

*Where:* “PSD” means issued pursuant to the Prevention of Significant Deterioration of Air Quality  
“FL” means that the permit was issued by the State of Florida  
“317” identifies the specific permit project

**RULE CITATION FORMATS**

Florida Administrative Code (F.A.C.)

*Example:* [Rule 62-213.205, F.A.C.]

*Means:* Title 62, Chapter 213, Rule 205 of the Florida Administrative Code

Code of Federal Regulations (CFR)

*Example:* [40 CFR 60.7]

*Means:* Title 40, Part 60, Section 7

**SECTION IV. APPENDIX B (DRAFT)**  
**GENERAL CONDITIONS**

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The permittee shall comply with the following general conditions from Rule 62-4.160, F.A.C.

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.
2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey and vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.
4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.
5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.
6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.
7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:
  - a. Have access to and copy and records that must be kept under the conditions of the permit;
  - b. Inspect the facility, equipment, practices, or operations regulated or required under this permit, and,
  - c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:
  - a. A description of and cause of non-compliance; and
  - b. The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, Florida

**SECTION IV. APPENDIX B (DRAFT)**  
**GENERAL CONDITIONS**

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- Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.
10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.
  11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 62-4.120 and 62-730.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.
  12. This permit or a copy thereof shall be kept at the work site of the permitted activity.
  13. This permit also constitutes:
    - a. Determination of Best Available Control Technology (X);
    - b. Determination of Prevention of Significant Deterioration (X); and
    - c. Compliance with New Source Performance Standards (X).
  14. The permittee shall comply with the following:
    - a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.
    - b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application or this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.
    - c. Records of monitoring information shall include:
      - 1) The date, exact place, and time of sampling or measurements;
      - 2) The person responsible for performing the sampling or measurements;
      - 3) The dates analyses were performed;
      - 4) The person responsible for performing the analyses;
      - 5) The analytical techniques or methods used; and
      - 6) The results of such analyses.
  15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

**SECTION IV. APPENDIX C (DRAFT)**  
**STANDARD REQUIREMENTS**

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*{Permitting Note: The following conditions are generally applicable to all emissions units.}*

**EMISSIONS AND CONTROLS**

1. Plant Operation - Problems: If temporarily unable to comply with any of the conditions of the permit due to breakdown of equipment or destruction by fire, wind or other cause, the permittee shall notify each Compliance Authority as soon as possible, but at least within one working day, excluding weekends and holidays. The notification shall include: pertinent information as to the cause of the problem; steps being taken to correct the problem and prevent future recurrence; and, where applicable, the owner's intent toward reconstruction of destroyed facilities. Such notification does not release the permittee from any liability for failure to comply with the conditions of this permit or the regulations. [Rule 62-4.130, F.A.C.]
2. Circumvention: The permittee shall not circumvent the air pollution control equipment or allow the emission of air pollutants without this equipment operating properly. [Rule 62-210.650, F.A.C.]
3. Excess Emissions Prohibited: Excess emissions caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure that may reasonably be prevented during startup, shutdown or malfunction shall be prohibited. [Rule 62-210.700(4), F.A.C.]
4. Excess Emissions - Notification: In case of excess emissions resulting from malfunctions, the permittee shall notify the Department or the appropriate Local Program in accordance with Rule 62-4.130, F.A.C. A full written report on the malfunctions shall be submitted in a quarterly report, if requested by the Department. [Rule 62-210.700(6), F.A.C.]
5. VOC or OS Emissions: No person shall store, pump, handle, process, load, unload or use in any process or installation, volatile organic compounds or organic solvents without applying known and existing vapor emission control devices or systems deemed necessary and ordered by the Department. [Rule 62-296.320(1), F.A.C.]
6. Objectionable Odor Prohibited: No person shall cause, suffer, allow or permit the discharge of air pollutants, which cause or contribute to an objectionable odor. [Rule 62-296.320(2), F.A.C.]
7. General Visible Emissions: No person shall cause, let, permit, suffer or allow to be discharged into the atmosphere the emissions of air pollutants from any activity equal to or greater than 20 percent opacity. [Rule 62-296.320(4)(b)1, F.A.C.]
8. Unconfined Particulate Emissions: During the construction period, unconfined particulate matter emissions shall be minimized by dust suppressing techniques such as covering and/or application of water or chemicals to the affected areas, as necessary. [Rule 62-296.320(4)(c), F.A.C.]

**TESTING REQUIREMENTS**

9. Operating Rate During Testing: Testing of emissions shall be conducted with the emissions unit operating at permitted capacity. Permitted capacity is defined as 90 to 100 percent of the maximum operation rate allowed by the permit. If it is impractical to test at permitted capacity, an emissions unit may be tested at less than the maximum permitted capacity; in this case, subsequent emissions unit operation is limited to 110 percent of the test rate 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. [Rule 62-297.310(2), F.A.C.]
10. Calculation of Emission Rate: For each emissions performance test, the indicated emission rate or concentration shall be the arithmetic average of the emission rate or concentration determined by each of the three separate test runs unless otherwise specified in a particular test method or applicable rule. [Rule 62-297.310(3), F.A.C.]
11. Test Procedures: Tests shall be conducted in accordance with all applicable requirements of Chapter 62-297, F.A.C.
  - a. Required Sampling Time. Unless otherwise specified in the applicable rule, the required sampling time for each test run shall be no less than one hour and no greater than four hours, and the sampling time at each sampling point shall be of equal intervals of at least two minutes. The minimum observation period for a visible emissions

**SECTION IV. APPENDIX C (DRAFT)**  
**STANDARD REQUIREMENTS**

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compliance test shall be thirty (30) minutes. The observation period shall include the period during which the highest opacity can reasonably be expected to occur.

- b. *Minimum Sample Volume.* Unless otherwise specified in the applicable rule or test method, the minimum sample volume per run shall be 25 dry standard cubic feet.
- c. *Calibration of Sampling Equipment.* Calibration of the sampling train equipment shall be conducted in accordance with the schedule shown in Table 297.310-1, F.A.C.

[Rule 62-297.310(4), F.A.C.]

12. Determination of Process Variables

- a. *Required Equipment.* The owner or operator of an emissions unit for which compliance tests are required shall install, operate, and maintain equipment or instruments necessary to determine process variables, such as process weight input or heat input, when such data are needed in conjunction with emissions data to determine the compliance of the emissions unit with applicable emission limiting standards.
- b. *Accuracy of Equipment.* Equipment or instruments used to directly or indirectly determine process variables, including devices such as belt scales, weight hoppers, flow meters, and tank scales, shall be calibrated and adjusted to indicate the true value of the parameter being measured with sufficient accuracy to allow the applicable process variable to be determined within 10% of its true value.

[Rule 62-297.310(5), F.A.C.]

13. Sampling Facilities: The permittee shall provide stack testing facilities and sampling locations in accordance with Rule 62-297.310(6), F.A.C.

14. Test Notification: The permittee shall notify the Compliance Authority in writing at least 30 days prior to any initial NSPS performance tests and at least 15 days prior to any other required tests. [Rule 62-297.310(7)(a)9, F.A.C. and 40 CFR 60.7, 60.8]

15. Special Compliance Tests: When the Department, after investigation, has good reason (such as complaints, increased visible emissions or questionable maintenance of control equipment) to believe that any applicable emission standard contained in a Department rule or in a permit issued pursuant to those rules is being violated, it shall require the owner or operator of the emissions unit to conduct compliance tests which identify the nature and quantity of pollutant emissions from the emissions unit and to provide a report on the results of said tests to the Department. [Rule 62-297.310(7)(b), F.A.C.]

**RECORDS AND REPORTS**

16. Records Retention: All measurements, records, and other data required by this permit shall be documented in a permanent, legible format and retained for at least five (5) years following the date on which such measurements, records, or data are recorded. Records shall be made available to the Department upon request. [Rules 62-4.160(14) and 62-213.440(1)(b)2, F.A.C.]

17. Annual Operating Report: The permittee shall submit an annual report that summarizes the actual operating rates and emissions from this facility. Annual operating reports shall be submitted to the Compliance Authority by March 1st of each year. [Rule 62-210.370(2), F.A.C.]

18. Emissions Performance Test Reports: A report indicating the results of any required emissions performance test shall be submitted to each Compliance Authority no later than 45 days after completion of the last test run. The test report shall provide sufficient detail on the tested emission unit and the procedures used to allow the Department to determine if the test was properly conducted and if the test results were properly computed. At a minimum, the test report shall provide the applicable information listed in Rule 62-297.310(8)(c), F.A.C. [Rule 62-297.310(8), F.A.C.]

**SECTION IV. APPENDIX D (DRAFT)**  
**FINAL BACT DETERMINATIONS**

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**PSD Applicability**

The existing facility is located in Palm Beach County, an area that is in attainment with (or designated as unclassifiable for) all air pollutants subject to a National Ambient Air Quality Standard (NAAQS). The cogeneration plant is classified as a fossil fuel-fired steam electric plant, which is one of the 28 PSD Major Facility Categories identified in Table 62-212.400-1, F.A.C. Potential emissions from the plant are greater than 100 tons per year for at least one regulated pollutant. As such, the facility is "major" with respect to the Prevention of Significant Deterioration (PSD) of Air Quality. The proposed project will result in net emissions increases for carbon monoxide, fluorides, sulfur dioxide, and sulfuric acid mist that are greater than the PSD significant emission rates identified in Table 62-212.400-2, F.A.C. Therefore, the project is subject to PSD review and the Department must determine the Best Available Control Technology (BACT) for these pollutants in accordance with Rule 62-212.400, F.A.C.

**Carbon Monoxide (CO)**

*BACT Standards:* 0.50 lb/MMBtu based on a 30-day rolling CEMS average, and  
0.35 lb/MMBtu based on a 12-month rolling CEMS average

*Control Technology:* CO emissions are minimized by good combustion practices.

*Compliance Method:* Compliance demonstrated by continuous emissions monitoring system (CEMS).

*Comments:* In 1993, the original project did not require a BACT determination because the result was a net CO emissions decrease of more than 8000 tons per year due to the shutdown of existing sugar mill boilers. The 2001 modification did not increase allowable emissions, but could result in a net increase of actual emissions. Therefore, a BACT determination was required for the existing cogeneration boilers.

**Fluorides (F1)**

*BACT Standard:* Fluoride emissions shall be minimized by firing biomass as the primary fuel with natural gas and very low sulfur distillate oil as auxiliary fuels.

*Control Technology:* Fluoride emissions minimized by firing clean fuels.

*Compliance Method:* Compliance assumed providing only authorized fuels are fired.

*Comments:* In 1993, the original project required a BACT determination for fluoride emissions due to the inclusion of coal as an emergency backup fuel. The 2001 modification removed the authorization to fire coal as well as the fluoride emissions standards when firing coal and distillate oil. Uncontrolled fluoride emissions from firing biomass, natural gas, and distillate oil are expected to be much less than 4 tons per year.

**Sulfur Dioxide (SO<sub>2</sub>)**

*BACT Standards:* 0.20 lb/MMBtu based on a 24-hour block CEMS average;  
0.10 lb/MMBtu based on a 30-day rolling CEMS average; and  
0.06 lb/MMBtu based on a 12-month rolling CEMS average

*Control Technology:* SO<sub>2</sub> emissions are minimized by firing biomass as the primary fuel with natural gas and very low sulfur distillate oil as auxiliary fuels (low sulfur fuels).

*Compliance Method:* Compliance demonstrated by continuous emissions monitoring system (CEMS).

*Comments:* In 1993, the original project required a BACT determination for SO<sub>2</sub> emissions due to the inclusion of coal as an emergency backup fuel. The 2001 modification removed the authorization to fire coal and resulted in a decrease in allowable SO<sub>2</sub> emissions. However, actual SO<sub>2</sub> emissions were expected to result in a significant net increase, which required a revised BACT determination for the existing cogeneration boilers.

**Sulfuric Acid Mist (SAM)**

*BACT Standard:* Potential SAM emissions shall be minimized by the effective control of SO<sub>2</sub> emissions with the firing of low sulfur fuels.

**SECTION IV. APPENDIX D (DRAFT)**  
**FINAL BACT DETERMINATIONS**

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*Control Technology:* SAM emissions are minimized by firing biomass as the primary fuel with natural gas and very low sulfur distillate oil as auxiliary fuels (low sulfur fuels).

*Compliance Method:* Compliance assumed providing only authorized fuels are fired.

*Comments:* In 1993, the original project required a BACT determination for SAM emissions due to the inclusion of coal as an emergency backup fuel. The 2001 modification removed the authorization to fire coal and resulted in a decrease in allowable SAM emissions. However, actual SAM emissions were expected to result in a significant net increase, which required a revised BACT determination for the existing cogeneration boilers. Based on stack testing for the existing cogeneration boilers, SAM emissions are estimated to be 6% of the total SO<sub>2</sub> emissions.

**Final BACT Determinations**

In accordance with Rule 62-212.400, F.A.C., the Department determines that the above standards represent the Best Available Control Technology (BACT) for the existing biomass cogeneration boilers. The Department's technical review and rationale for the BACT determinations are presented in Technical Evaluation and Preliminary Determination issued concurrently with the draft permit for this project.

*Determination By:*

(DRAFT)

\_\_\_\_\_  
J. F. Koerner, P.E., Project Engineer  
New Source Review Section

(Date)

*Recommended By:*

(DRAFT)

\_\_\_\_\_  
C. H. Fancy, Chief  
Bureau of Air Regulation

(Date)

*Approved By:*

(DRAFT)

\_\_\_\_\_  
Howard L. Rhodes, Director  
Division of Air Resources Management

(Date)

**SECTION IV. APPENDIX E (DRAFT)**  
**CONTINUOUS MONITOR REQUIREMENTS**

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*{Permitting Note: The following summarizes the basic monitoring requirements for the cogeneration boilers.}*

1. **Process and Control Parameters:** The permittee shall install, calibrate, maintain, and operate continuous monitoring systems to measure and record the following process and control equipment parameters:
  - a. *Power Output.* The net power generation (MW) delivered for sale to the electrical power grid shall be continuously monitored and recorded in 1-hour block averages.
  - b. *Fuel Feed Rate.* Fuel flow meters equipped with totalizers are required to monitor and record the fuel feed rates for distillate oil (gallons) and natural gas (million cubic feet). Biomass feed rates (tons of bagasse and tons of wood) shall be calculated and recorded based on updated fuel heating values. In addition, the heat input to each boiler shall be sufficiently monitored to provide an hourly average for each 1-hour block of operation. Calculation methods for the biomass feed rate and heat input rates shall be detailed in the Title V operation permit.
  - c. *Steam Parameters.* Each cogeneration boiler shall be equipped with monitors to measure and record the steam temperature (° F), steam pressure (psig), and steam production (pounds).
  - d. *Urea Injection Rate (SNCR System).* The urea injection rate shall be continuously monitored and recorded for each cogeneration boiler. The urea injection rate shall be compared to actual NO<sub>x</sub> emissions data recorded by the CEMS. The permittee shall identify minimum urea injection rates for various load conditions that ensure compliance with the NO<sub>x</sub> standards. Should the NO<sub>x</sub> CEMS be unavailable, the urea injection rate shall be maintained at an appropriate minimum level.
  - e. *Activated Carbon Injection Rate (Mercury Control System).* If the mercury injection system is reactivated, the carbon injection rate shall be continuously monitored and recorded. Based on the testing required in this permit, the permittee shall identify and maintain minimum carbon injection rates to ensure effective control of mercury emissions.

The permittee shall maintain written procedures for inspecting, calibrating, and maintaining the process and control monitoring equipment. [Rules 62-4.070 and 62-212.400(BACT), F.A.C.]

2. **CEMS and COMS:** For each cogeneration boiler, the permittee shall install, calibrate, maintain, and operate continuous emissions monitors (CEMS) and continuous opacity monitors (COMS) to measure and record emissions of carbon monoxide (CO), nitrogen oxides (NO<sub>x</sub>), oxygen (O<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), and opacity in a manner sufficient to demonstrate compliance with the standards of this permit.
  - a. *Performance Specifications.* Each monitor shall be located in the ductwork between the electrostatic precipitator and the stack (or in the stack) to obtain emissions measurements representative of actual stack emissions. Each CEMS and COMS shall comply with the corresponding performance specifications that identify location, installation, design, performance, and reporting requirements.
    - (1) Opacity shall comply with Performance Specification 1 in Appendix B of 40 CFR 60.
    - (2) NO<sub>x</sub> and SO<sub>2</sub> CEMS shall comply with Performance Specification 2 in Appendix B of 40 CFR 60. The SO<sub>2</sub> reference method for the annual RATA shall be EPA Method 6 (or 6C) in Appendix A of 40 CFR 60. The NO<sub>x</sub> reference method for the annual RATA shall be EPA Method 7 (or 7E) in Appendix A of 40 CFR 60.
    - (3) O<sub>2</sub> CEMS shall comply with Performance Specification 3 in Appendix B of 40 CFR 60. The O<sub>2</sub> reference method for the annual RATA shall be EPA Method 3A Appendix A of 40 CFR 60.
    - (4) CO CEMS shall meet Performance Specification 4 or 4A in Appendix B of 40 CFR 60. The CO reference method for the annual RATA shall be EPA Method 10 in Appendix A of 40 CFR 60.
  - b. *Data Collection.* Each CEMS and COMS shall record emissions data at all times including episodes of startup, shutdown, and malfunction. Emissions data recorded during periods of startup, shutdown, or malfunction may only be excluded from the compliance averages in accordance with the requirements specified in Section III of this permit. To the extent practicable, the permittee shall minimize the duration of data excluded for startup, shutdown and malfunctions.

Each CEMS shall be designed and operated to sample, analyze, and record emissions data evenly spaced over a 1-



**SECTION IV. APPENDIX E (DRAFT)**  
**CONTINUOUS MONITOR REQUIREMENTS**

---

hour period. Each 1-hour average shall be computed using at least one data point in each fifteen minute quadrant of the 1-hour block during which the unit combusted fuel. Notwithstanding this requirement, each 1-hour average shall be computed from at least two data points separated by a minimum of 15 minutes. All valid measurements or data points collected during a 1-hour block shall be used to calculate the 1-hour emission averages. CO, NO<sub>x</sub>, and SO<sub>2</sub> CEMS shall express the 1-hour emission averages in terms of "lb/MMBtu of heat input". O<sub>2</sub> CEMS shall express the 1-hour emission average in terms of "percent by volume". A 30-day rolling emission average shall be the average of all valid 1-hour emission averages collected during the 30-day period. A 12-month rolling emission average shall be the average of all valid 1-hour emission averages collected during the 12-month period. NO<sub>x</sub> and SO<sub>2</sub> CEMS shall comply with NSPS Subpart Da in 40 CFR 60.

Each COMS shall be designed and operated to complete a minimum of one cycle of sampling and analyzing for each successive 10-second period and one cycle of data recording for each successive 6-minute period. Opacity shall be recorded in 6-minute block averages.

- c. *Quality Assurance Procedures.* Each CEMS shall comply with the applicable quality assurance procedures specified in Appendix F of 40 CFR 60. These procedures include methods such as calibration, calibration drift, data recording, accuracy assessment, calculations, audit procedures, preventive maintenance, corrective actions, and reporting.
- d. *Monitor Availability.* Monitor availability shall not be less than 95% in any calendar quarter. In the event 95% availability is not achieved, the permittee shall provide the Department with a report identifying the problems in achieving 95% availability and a plan of corrective actions that will be taken to achieve 95% availability. The permittee shall implement the reported corrective actions within the next calendar quarter. Failure to take corrective actions or continued failure to achieve the minimum monitor availability shall be violations of this permit.
- e. *Other Applicable Requirements:* Each CEMS shall comply with the following applicable requirements Rules 62-204.800 and 62-297.520, F.A.C. (Continuous Monitor Performance Specifications); 40 CFR 60.13 (Subpart A - Monitoring Requirements); 40 CFR 60.47a (Subpart Da - Emissions Monitoring); 40 CFR 60.48a (Subpart Da - Compliance Determination Procedures and Methods); 60.49a (Subpart Da - Reporting Requirements).
- f. *Quarterly Reports:* For each cogeneration boiler, the permittee shall submit the report on the following page to summarize each required continuous emissions and opacity monitoring system. The authorized representative shall certify that the information provided in each quarterly report is true, accurate, and complete to the best of his/her knowledge. Each quarterly report is due no later than 30 days following the calendar quarter.

**QUARTERLY CONTINUOUS MONITOR SYSTEM (CMS) REPORTS**

|  |  |   |  |
|--|--|---|--|
| <b>Facility Name</b><br>Okeelanta Cogeneration Plant   |  | <b>ARMS ID No.</b><br>0990332   | <b>Title V Air Permit No.</b><br>_____ |
| <b>Facility Address/Location</b><br>Located off U.S. Highway 27 South, approximately six miles south of South Bay in Palm Beach County, Florida  |  |   |  |
| <b>Emissions Unit Description</b><br>Spreader stoker boiler with maximum heat input of 715 MMBtu/hour<br>ARMS EU ID No. _____ Cogeneration Boiler: ___ A ___ B ___ C   |  | <b>Unit Operation in Calendar Quarter</b><br>_____ hours  |  |
| <b>Control Equipment</b><br>Mercury - activated carbon injection; Nitrogen Oxides – low NOx burners and selective non-catalytic reduction (NOx) system; Particulate Matter – mechanical dust collectors and electrostatic precipitators  |  |   |  |
| <b>Primary Fuel</b><br>Biomass, which includes bagasse from adjacent sugar mill and wood material from area suppliers (clean construction and demolition wood debris, yard trash, land clearing debris, and other clean cellulose and vegetative matter)   |  | <b>Auxiliary Fuels</b><br>Pipeline-quality natural gas<br>Distillate oil (≤ 0.05% sulfur by wt.)  |  |
| <b>Pollutant Monitored (Check one.)</b><br>___ CO ___ NOx ___ SO2 ___ Opacity  |  | <b>Calendar Quarter of Operation Covered (Check one.)</b><br>Year: _____ ___ 1 ___ 2 ___ 3 ___ 4  |  |
| <b>Continuous Monitor MS Information</b><br>Manufacturer: _____<br>Model No. _____<br>Date of last certification or audit: _____   |  | <b>Emission Standards</b><br>_____ lb/MMBtu of heat input, 30-day rolling avg.<br>_____ lb/MMBtu of heat input, 12-month rolling avg.   |  |
| <b>Emission Data Summary</b><br>1. Duration of excess emissions in reporting period due to:<br>a. Startup/shutdown..... _____<br>b. Control equipment problems ..... _____<br>c. Process problems ..... _____<br>d. Other known causes ..... _____<br>e. Unknown causes ..... _____<br>2. Total duration of excess emissions ..... _____<br>3. $\frac{[\text{Total duration of excess emissions}]}{[\text{Total source operating time}]^c} \times (100\%) \dots\dots$ _____<br><br><i>Note: Report "excess emissions" as emission averages that are in excess of a permitted emissions standard. For gases, report excess emissions in terms of hours. For opacity, report excess emissions in terms of minutes.</i> |  | <b>CMS Performance Summary</b><br>1. CMS downtime in reporting period due to:<br>a. Monitor Equipment Malfunctions ..... _____<br>b. Non-Monitor Equipment Malfunctions ..... _____<br>c. Quality Assurance Calibration ..... _____<br>d. Other Known Causes ..... _____<br>e. Unknown Causes ..... _____<br>2. Total CMS Downtime..... _____<br>3. $\frac{[\text{Total CMS Downtime}]}{[\text{Total source operating time}]} \times (100\%) \dots\dots$ _____<br><br><i>If monitor availability is not at least 95%, provide a report identifying the problems in achieving 95% availability and a plan of corrective actions that will be taken to achieve 95% availability</i> |  |
| <b>Emissions Data Exclusion</b><br>1. Report the number of 1-hour emissions averages excluded the reporting period due to:<br>a. Startup..... _____<br>b. Shutdown..... _____<br>c. Malfunction ..... _____<br>d. Total..... _____<br>2. On a separate page, summarize each malfunction event, the cause (if known), and corrective actions taken.<br>3. On a separate page, describe any changes to CMS, process or controls during last quarter.   |  |   |  |

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 Plant Manager  
 Okeelanta cogeneration Plant  
~~8001 U. S. Highway 27 South~~  
 South Bay, FL 33493

*PO Box 9*

2. Article Number (Copy from service label)

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PS Form 3811, July 1999

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**Golder Associates Inc.**

6241 NW 23rd Street, Suite 500  
Gainesville, FL 32653-1500  
Telephone (352) 336-5600  
Fax (352) 336-6603  
December 7, 2001



0037584

Florida Department of Environmental Protection  
Bureau of Air Regulation  
2600 Blair Stone Road  
Tallahassee, FL 32399-2400

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DEC 10 2001

BUREAU OF AIR REGULATION

Attention: Mr. Jeff Koerner, P.E.

RE: OKEELANTA POWER COGENERATION FACILITY  
ARMS FACILITY ID NO. 0990332  
PROJECT NO. 0990332-014-AC/PSD-FL-196M  
APPLICATION TO MODIFY CO AND SO<sub>2</sub> EMISSIONS STANDARDS

Dear Mr. Koerner:

Okeelanta Power Limited Partnership (OkPLP) has received the Department's letters dated July 11, 2001 and November 29, 2001 requesting additional information in regards to modifying the CO and SO<sub>2</sub> emissions standards for the three cogeneration boilers. In the letter dated July 11, a request was made (comment No. 5) for an updated SO<sub>2</sub> air quality modeling analysis. This request was further discussed in the November 29 letter.

Per your request, an SO<sub>2</sub> air quality impact analysis was performed. The modeling analysis including the report, tables, modeling methodology, and results is attached. Supportive modeling files have been emailed to Cleve Holladay of your staff.

If you have any questions, please call me at (352) 336-5600 or email me at dave\_buff@golder.com.

Sincerely,

GOLDER ASSOCIATES INC.

*David A. Buff*  
David A. Buff, P.E., Q.E.P.  
Principal Engineer  
Florida P.E. #19011  
SEAL

Enclosure

DB/FH/jkw

cc: Gus Cepero  
James Meriwether  
David Dee  
Bill Tarr  
Fawn Howard

*C. Holladay*  
*J. Stammers, P.E.*  
*D. Knowles, SD*  
*G. Holladay, EPA*  
*J. Bunyath, WB*

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**AIR QUALITY IMPACT ANALYSIS  
FOR SULFUR DIOXIDE  
OKEELANTA POWER L.P.  
SOUTH BAY, FLORIDA**

**Prepared For:**

**Okeelanta Power, L.P.  
21250 U.S. Highway 27  
South Bay, Florida 33493**

**Prepared By:**

**Golder Associates Inc.  
6241 NW 23rd Street, Suite 500  
Gainesville, Florida 32653-1500**

**December 2001  
0037584Y**

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## 1.0 AIR QUALITY IMPACT ANALYSIS FOR SULFUR DIOXIDE

Golder Associates Inc. (Golder), on behalf of Okeelanta Power L.P. (OkPLP), has performed additional air quality impact analyses for sulfur dioxide (SO<sub>2</sub>) at the request of the Florida Department of Environmental Protection (FDEP). These analyses were based on modeling OkPLP's expected future maximum SO<sub>2</sub> emissions together with other SO<sub>2</sub> emission sources within the modeling and screening areas. The modeling area extended out to 8 kilometers (km), which is the distance at which the increase in SO<sub>2</sub> impacts are predicted to be below the 3-hour, 24-hour, and annual significant impact levels of 1, 5, and 25 micrograms per cubic meter (µg/m<sup>3</sup>), respectively. Therefore, the screening area extended out to 58 km i.e., 50 km beyond the modeling area.

As shown in these analyses, OkPLP's SO<sub>2</sub> impacts, together with those from background SO<sub>2</sub> emission sources, are predicted to be below the national and state ambient air quality standards (AAQS), prevention of significant deterioration (PSD) Class II increments, and PSD Class I increments. The following summary provides a description of the methods and assumptions used to estimate total SO<sub>2</sub> air quality concentrations for OkPLP and other sources.

### 1.1 AIR MODELING METHODS AND APPROACH

SO<sub>2</sub> concentrations predicted in areas within 50 km of the OkPLP facility were predicted with the Industrial Source Complex Short-term (ISCST3, Version 00101) dispersion model (EPA, 2001) and 5 years of meteorological data from the National Weather Service (NWS) office at Palm Beach International Airport. The 5-year period of meteorological data was from 1987 through 1991. Generally, when using 5-years of meteorological data for the analysis, the highest annual and highest, second-highest (HSH) short-term concentrations are to be compared to the applicable AAQS and allowable PSD increments. The HSH is calculated for a receptor field by:

1. Eliminating the highest concentration predicted at each receptor,
2. Identifying the second-highest concentration at each receptor, and
3. Selecting the highest concentration among these second-highest concentrations.

This approach is consistent with most air quality standards and all allowable PSD increments, which permit a short-term average concentration to be exceeded once per year at each receptor.

For predicting maximum impacts at the Everglades National Park (NP) PSD Class I area, the California Puff (CALPUFF) modeling system was used. CALPUFF, Version 5.4 (EPA, 2000), is a

Langrangian puff model that is recommended by the FDEP, in coordination with the Federal Land Manager (FLM) for the Everglades NP, for predicting pollutant impacts at PSD Class I areas that are beyond 50 km from the project site. For this project, CALPUFF was used in a refined mode using a CALMET-developed wind field domain covering South Florida. A more detailed discussion of CALPUFF and the CALMET wind field used for the analysis is provided in Appendix A.

#### **1.1.1 SIGNIFICANT IMPACT ANALYSIS**

For the significant impact analysis, the difference between the future and actual SO<sub>2</sub> emissions of the OkPLP boilers were modeled. The maximum 3-hour, 24-hour, and annual concentrations are compared to the Class II significant impact levels in the vicinity of the plant, and to the Class I significant impact levels at the PSD Class I area. For all averaging times in which the predicted concentration is greater than the applicable significant impact level, further modeling is required. The Class II modeling area is also determined from the Class II significant impact analysis.

#### **1.1.2 AAQS ANALYSIS**

For the AAQS analysis, the future SO<sub>2</sub> emissions of the OkPLP boilers are modeled with background emission facilities. A non-modeled background concentration is added to the maximum predicted air quality to determine a total air quality concentration. The maximum annual and HSH short-term total concentrations are compared to the AAQS.

#### **1.1.3 PSD CLASS II ANALYSIS**

For the PSD Class II increment analysis, the future SO<sub>2</sub> emissions along with the PSD baseline source emissions of the OkPLP site are modeled with background emission facilities. The maximum annual and HSH short-term total concentrations are compared to the PSD Class II increments.

#### **1.1.4 PSD CLASS I ANALYSIS**

For the PSD Class I increment analysis, the future SO<sub>2</sub> emissions along with the PSD baseline source emissions of the OkPLP site are modeled with background emission facilities (all PSD sources within 150 km). The maximum annual and HSH short-term total concentrations are compared to the PSD Class I increments.

### 1.1.5 VISIBILITY ANALYSIS

The regional haze analysis was performed using the latest regulatory guidance as provided in the FLM's Air Quality Related Value Work Group (FLAG) Phase I report (December 2000). Using the hourly meteorological and relative humidity data used with the CALPUFF model, the daily change in background extinction is computed. Based on the recommendations of the FLAG Phase I Report (December 2000), the regional haze analysis considered only the maximum 24-hour increase in SO<sub>2</sub> emissions due to the proposed project. The hygroscopic and dry non-hygroscopic components used for calculating the daily background extinction coefficients for the Everglades NP were obtained from the FLAG document. For this analysis, the hygroscopic and dry non-hygroscopic components were 0.9 and 8.5 inverse millimeters (mm<sup>-1</sup>), respectively.

## 2.0 EMISSION INVENTORY

The current and future maximum SO<sub>2</sub> emissions for the OkPLP boilers are presented in Table 2-1. Stack and operating parameters are presented in Table 2-2. The current actual SO<sub>2</sub> emissions data were based on current permit limits, AOR data, and Continuous Emissions Monitoring System (CEMS) data. Future maximum SO<sub>2</sub> emissions were based on expected future maximum emissions and the maximum annual heat input rate. Stack and operating data were obtained from the Title V permit application (1999).

Current actual hourly and future maximum hourly sulfuric acid mist (SAM) emissions are presented in Table 2-1. SAM emissions were based on SO<sub>2</sub> emissions and then converted to SAM assuming a 5-percent conversion of SO<sub>2</sub> to sulfur trioxide (SO<sub>3</sub>), and using the ratio of the molecular weights of SAM to gaseous sulfate (98/80).

The emission inventories for background facilities were developed from databases obtained from the DEP, previous air modeling studies performed by Golder, and air permit data. All background sources in these inventories were located inside the modeling area.

For sources located in the screening area (defined as 50 km beyond the modeling area), a technique was used for eliminating sources in the modeling analyses if the source's emissions do not meet an emission criterion. This technique, which is approved for use by the FDEP and the U.S. Environmental Protection Agency, is the Screening Threshold method, developed by the North Carolina Department of Natural Resources and Community Development. The method is designed to objectively eliminate from the emission inventory those sources that are unlikely to have a significant interaction with the source undergoing evaluation. In general, sources that should be considered in the modeling analyses are those with emissions greater than a screening threshold value (in TPY) that is calculated by the following criteria:

$$Q = 20 \times D$$

where Q = the screening threshold value (TPY), and

D = The distance (km) from the proposed facility to the source undergoing evaluation for short-term analysis, or

The distance (km) from the edge of the proposed facility's significant impact area to the source undergoing evaluation for long-term (annual) analysis.

For this analysis, the long-term criterion was used since fewer facilities would be eliminated than with the short-term criterion. Also, the total emissions from a facility were used rather than emissions from individual sources for comparison to the screening threshold value. These methods result in a more conservative approach to produce higher-than-expected concentrations. Those facilities with maximum allowable emissions that are below the calculated *screening threshold* were eliminated from further consideration in the AAQS modeling analyses. However, certain large sources (<1,000 TPY) located beyond the screening area were also included in the modeling, based on EPA comments.

A summary of the facilities considered for inclusion in the AAQS and PSD Class II modeling analyses is presented in Table 2-3. This summary identifies facilities located within the modeling area and screening area. The facilities that were not included in the modeling analyses because SO<sub>2</sub> emissions were less than the screening threshold criteria are also identified.

A summary of the facilities considered for inclusion in the PSD Class I modeling analysis is presented in Table 2-4. This summary identifies all facilities located within 150 km of the PSD Class I area.

A summary of the stack, operating, and emission data for sources used in the modeling analyses is presented in Table 2-5.

### 3.0 RECEPTOR LOCATIONS

The maximum concentrations in the vicinity of OkPLP were predicted in a receptor grid that contained 573 discrete receptors. The discrete receptors included 393 receptors, separated by 100-meter spacing, located along OkPLP's property line and 180 additional offsite receptors in radials at 10-degree intervals and at distances of 4.0, 5.0, 6.0, 7.0, and 8.0 km from the cogeneration Boiler B's stack. A summary of the property boundary receptors is presented in Table 3-1. A plot of the property boundary, receptors, and building locations is presented in Figure 3-1. A summary of the Everglades NP Class I area receptors used in the PSD Class I increment analysis is presented in Table 3-2.

#### **4.0 BUILDING DOWNWASH EFFECTS FOR OKPLP**

All significant building structures within OkPLP's property boundary were determined by a site plot plan. The plot plan was presented in the original application (Attachment OC-FI-C2). A total of four building structures were evaluated. All building structures were processed in the EPA Building Input Profile (BPIP, Version 95086) program to determine direction-specific building heights and projected widths for each 10-degree azimuth direction for each source that was included in the modeling analysis. A listing of dimensions for each structure is presented in Table 4-1. A plot of the building dimensions and the cogeneration Boiler B stack location (the modeling origin) is presented in Figure 4-1.

## 5.0 BACKGROUND CONCENTRATIONS

To estimate the total SO<sub>2</sub> air quality concentrations, 3-hour, 24-hour, and annual background concentrations were added to the modeling results. The background concentration is considered to be the air quality concentration contributed by sources not included in the modeling evaluation. Because other background sources were modeled, a background value was used that was considered to be realistic but still conservative.

A summary of the SO<sub>2</sub> ambient monitoring data, in the vicinity of OkPLP for 1997 through 2000 is presented in Table 5-1. The SO<sub>2</sub> monitors nearest to the site are monitor ID 4150-001-J02, located at 300 North US 27 in South Bay and monitor ID 3840-004-G02 and 12-099-3004, located at 1050 15<sup>th</sup> Street in Riviera Beach. In this analysis, background concentrations were selected based on the second-highest concentrations measured from the nearest monitor located at 300 North US 27 in South Bay, since this monitor is much closer to OkPLP and is located in a more rural area of Palm Beach County.

For 1997, the second-highest of the 3-hour and 24-hour concentrations and the annual average concentration at this monitor was 47, 13, and 5 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ), respectively. These background levels were added to the refined model-predicted concentrations to estimate total SO<sub>2</sub> air quality levels for comparison to the AAQS.



## 6.0 SUMMARY OF RESULTS

### 6.1 SIGNIFICANT IMPACT ANALYSES

The maximum SO<sub>2</sub> impacts due to the proposed increase in emissions at OkPLP compared to the Class II significant impact levels, are presented in Table 6-1. Based on the Class II significant impact analysis results, AAQS and PSD Class II increment analyses must be performed.

The maximum SO<sub>2</sub> impacts due to the increase in emissions compared to the Class I significant impact levels are presented in Table 6-2. Based on the Class I significant impact analysis results, a full PSD Class I increment analysis must be performed for the 24-hour averaging time.

### 6.2 AAQS ANALYSIS

A summary of the HSH 3-hour, HSH 24-hour, and maximum annual average SO<sub>2</sub> concentrations predicted in the AAQS screening analysis is presented in Table 6-3. Based on the screening results, modeling refinements were performed for all averaging times. The results of the refined modeling analyses, from this analysis, are summarized in Table 6-4. For the AAQS analysis, the HSH 3-hour, HSH 24-hour, and maximum annual average SO<sub>2</sub> concentrations due to all sources, including background concentrations, are 248.6, 74.2, and 15.7 µg/m<sup>3</sup>, respectively. These concentrations are all well below the AAQS of 1,300; 260; and 60 µg/m<sup>3</sup>, respectively.

### 6.3 PSD CLASS II ANALYSIS

A summary of the HSH 3-hour, HSH 24-hour, and maximum annual average SO<sub>2</sub> screening results predicted in the PSD Class II increment analysis is presented in Table 6-5. Based on the screening results, modeling refinements were performed for the 3-hour and 24-hour averaging times. Maximum annual concentrations were predicted to be less than zero at all receptors. The results of the refined modeling analyses from this analysis are summarized in Table 6-6. For this analysis, the HSH 3-hour and HSH 24-hour average SO<sub>2</sub> concentrations due to all sources are 46.0 and 10.7 µg/m<sup>3</sup>, respectively. These concentrations are well below the PSD increments of 512 and 91 µg/m<sup>3</sup>, respectively.

#### **6.4 PSD CLASS I ANALYSIS**

A summary of the HSH 24-hour average SO<sub>2</sub> results predicted at the Everglades NP PSD Class I area is presented in Table 6-7. For this analysis, the HSH 24-hour average SO<sub>2</sub> concentration due to all sources is 3.47 µg/m<sup>3</sup>. This concentration is below the PSD Class I increment of 5 µg/m<sup>3</sup>.

Based on these air modeling results, the maximum SO<sub>2</sub> concentrations from OkPLP and other SO<sub>2</sub> emission sources will comply with the AAQS and PSD Class I and II increments.

## 7.0 VISIBILITY ANALYSIS

A refined regional haze analysis was performed for the proposed project. The SO<sub>2</sub> and sulfuric acid mist emissions used in the regional haze analysis were presented in Table 2-1. The maximum predicted 24-hour visibility degradation due to the proposed increase in emissions was 1.38 percent. Since this predicted visibility degradation is well below the criteria level of 5 percent, it can be concluded that the proposed project will not adversely impact the background visibility levels at the Everglades NP PSD Class I area.

Table 2-1. Cogeneration Boiler Emission Rates for Okeelanta Power, L.P.--Total all Three Boilers

| Pollutant          |           | Total<br>Heat Input<br>Rate    | CURRENT ACTUAL EMISSIONS |       |                             |       | FUTURE POTENTIAL EMISSIONS |       |                             |       |
|--------------------|-----------|--------------------------------|--------------------------|-------|-----------------------------|-------|----------------------------|-------|-----------------------------|-------|
|                    |           |                                | Short-Term<br>Emissions  |       | Annual Average<br>Emissions |       | Short-Term<br>Emissions    |       | Annual Average<br>Emissions |       |
|                    |           |                                | lb/hr                    | g/sec | TPY                         | g/sec | lb/hr                      | g/sec | TPY                         | g/sec |
| Sulfur Dioxide     | --3-Hour  | 2,145 MMBtu/hr <sup>a</sup>    | 321.75 <sup>b</sup>      | 40.54 | --                          | --    | 429.0 <sup>e</sup>         | 54.05 | --                          | --    |
|                    | --24-Hour | 2,145 MMBtu/hr <sup>a</sup>    | 214.50 <sup>c</sup>      | 27.03 | --                          | --    | 364.7 <sup>f</sup>         | 45.95 | --                          | --    |
|                    | --Annual  | 11.5 x 10 <sup>12</sup> Btu/yr | --                       | --    | 219.0 <sup>d</sup>          | 6.30  | --                         | --    | 402.50 <sup>g</sup>         | 11.58 |
| Sulfuric Acid Mist | --24-Hour | 2,145 MMBtu/hr <sup>a</sup>    | 13.14 <sup>h</sup>       | 1.66  | --                          | --    | 22.3 <sup>h</sup>          | 2.81  | --                          | --    |

<sup>a</sup> Based on three boilers operating at 715 MMBtu/hr each.

<sup>b</sup> Based on 0.15 lb/MMBtu, maximum 3-hour average SO<sub>2</sub> emissions from actual CEM data (Appendix B of letter to FDEP dated 6/8/01).

<sup>c</sup> Based on current 24-hour limit of 0.1 lb/MMBtu.

<sup>d</sup> Based on 2000 AOR data.

<sup>e</sup> Based on the expected future maximum of 0.2 lb/MMBtu.

<sup>f</sup> Based on the expected future maximum of 0.17 lb/MMBtu.

<sup>g</sup> Based on an annual maximum heat input rate of 11.5 x 10<sup>12</sup> Btu/yr and 0.07 lb/MMBtu.

<sup>h</sup> Based on SO<sub>2</sub> emissions and then converted to H<sub>2</sub>SO<sub>4</sub> mist assuming 5% conversion of SO<sub>2</sub> to SO<sub>3</sub>, then using the ratio of the molecular weights of sulfuric acid mist to gaseous sulfate (98/80).

Note: Btu/yr = British thermal units per year  
 g/sec = Grams per second  
 lb/hr = Pounds per hour  
 MMBtu/hr = Million British thermal units per hour  
 TPY = Tons per year

Table 2-2. Stack Parameters<sup>a</sup> for Okeelanta Power, L.P. Boilers

| ISCST ID | Heat Input<br>Rate<br>(MMBtu/hr) | Stack/Vent<br>Release Height |       | Stack/Vent<br>Diameter |      | Gas Flow<br>Rate<br>(acfm) | Gas Exit<br>Temperature |       | Velocity |       |
|----------|----------------------------------|------------------------------|-------|------------------------|------|----------------------------|-------------------------|-------|----------|-------|
|          |                                  | ft                           | m     | ft                     | m    |                            | <sup>o</sup> F          | K     | ft/sec   | m/sec |
| COGENF   | 715                              | 199                          | 60.66 | 10                     | 3.05 | 300,000                    | 352                     | 450.9 | 63.6     | 19.39 |

<sup>a</sup> Representative of all 3 boiler stacks.

Note: acfm = Actual cubic feet per minute

<sup>o</sup>F = Degrees Fahrenheit

K = Kelvin

m = Meters

m/sec = Meters per second

ft = Feet

ft/sec = Feet per second

Table 2-3. Summary of SO<sub>2</sub> Facilities Considered for Inclusion in the AAQS and PSD Class II Air Modeling Analyses

| AIRS Number | Facility                                     | County     | UTM Coordinates |            | Relative to Okeelanta <sup>a</sup> |        |               |                 | Maximum         | Q <sub>e</sub>                           | Include in Modeling Analysis ? |
|-------------|--|------------|-----------------|------------|------------------------------------|--------|---------------|-----------------|-----------------|--|--------------------------------|
|             |  |            | East (km)       | North (km) | X (km)                             | Y (km) | Distance (km) | Direction (deg) | SO <sub>2</sub> | Emission                                 |                                |
|             |  |            |                 |            |                                    |        |               |                 | Emissions (TPY) | Threshold <sup>b</sup> (Dist - SIA) x 20 |                                |
| 0990086     | Glades Correctional Institute                | Palm Beach | 523.4           | 2955.2     | -1.5                               | 15.1   | 15.2          | 354             | 98              | 143.5                                    | NO                             |
| 0990026     | Sugar Cane Growers                           | Palm Beach | 534.9           | 2953.3     | 10.0                               | 13.2   | 16.6          | 37              | 2,555           | 171.2                                    | YES                            |
| 0510001     | Everglades Sugar                             | Hendry     | 509.6           | 2954.2     | -15.3                              | 14.1   | 20.8          | 313             | 1,216           | 256.1                                    | YES                            |
| 0510003     | U.S. Sugar Clewiston                         | Hendry     | 506.1           | 2956.9     | -18.8                              | 16.8   | 25.2          | 312             | 7,806           | 344.3                                    | YES                            |
| 0990016     | Atlantic Sugar                               | Palm Beach | 552.9           | 2945.2     | 28.0                               | 5.1    | 28.5          | 80              | 954             | 409.2                                    | YES                            |
| 0990061     | U.S. Sugar -Bryant                           | Palm Beach | 538.8           | 2968.1     | 13.9                               | 28.0   | 31.3          | 26              | 2,698           | 465.2                                    | YES                            |
| 0990019     | Osceola Farms                                | Palm Beach | 544.2           | 2968.0     | 19.3                               | 27.9   | 33.9          | 35              | 2,023           | 518.5                                    | YES                            |
| 0510015     | Southern Gardens Citrus                      | Hendry     | 487.6           | 2957.6     | -37.3                              | 17.5   | 41.2          | 295             | 409             | 664.0                                    | NO                             |
| 0990021     | Pratt & Whitney                              | Palm Beach | 559.2           | 2978.3     | 34.3                               | 38.2   | 51.3          | 42              | 504             | 866.8                                    | NO                             |
| 0850102     | Bechtel Indiantown                           | Martin     | 545.6           | 2991.5     | 20.7                               | 51.4   | 55.4          | 22              | 2,629           | 948.2                                    | YES                            |
| 0850001     | FPL -Martin                                  | Martin     | 543.1           | 2992.9     | 18.2                               | 52.8   | 55.8          | 19              | 78,522          | 957.0                                    | YES                            |
| 0990234     | Palm Beach Resource Recovery <sup>c</sup>    | Palm Beach | 585.8           | 2960.2     | 60.9                               | 20.1   | 64.1          | 72              | 1,533           | 1122.6                                   | YES                            |
| 0110120     | North Broward Resource Recovery              | Broward    | 583.6           | 2907.6     | 58.7                               | -32.5  | 67.1          | 119             | 896             | 1181.9                                   | NO                             |
| 0990568     | Lake Worth Utilities <sup>c</sup>            | Palm Beach | 592.8           | 2943.7     | 67.9                               | 3.6    | 68.0          | 87              | 8,996           | 1199.9                                   | YES                            |
| 0990042     | FPL -Riviera Beach <sup>c</sup>              | Palm Beach | 594.2           | 2960.6     | 69.3                               | 20.5   | 72.3          | 74              | 73,475          | 1285.4                                   | YES                            |
| 0112119     | South Broward Resource Recovery <sup>c</sup> | Broward    | 579.6           | 2883.3     | 54.7                               | -56.8  | 78.9          | 136             | 1,318           | 1417.1                                   | YES                            |
| 0110037     | FPL -Lauderdale <sup>c</sup>                 | Broward    | 580.1           | 2883.3     | 55.2                               | -56.8  | 79.2          | 136             | 47,858          | 1424.1                                   | YES                            |
| 0110036     | FPL -Port Everglades <sup>c</sup>            | Broward    | 587.4           | 2885.3     | 62.5                               | -54.8  | 83.1          | 131             | 170,215         | 1502.4                                   | YES                            |
| 0850021     | Stuart Contracting                           | Martin     | 575.2           | 3006.8     | 50.3                               | 66.7   | 83.5          | 37              | 100             | 1510.8                                   | NO                             |
| 0250020     | Tarmac <sup>c</sup>                          | Dade       | 562.9           | 2861.7     | 38.0                               | -78.4  | 87.1          | 154             | 2,792           | 1582.5                                   | YES                            |
| 0250348     | Dade Co. Resource Recovery                   | Dade       | 564.3           | 2857.4     | 39.4                               | -82.7  | 91.6          | 155             | 857             | 1672.1                                   | NO                             |
| 0710019     | Lee County Resource Recovery                 | Lee        | 424.0           | 2946.0     | -100.9                             | 5.9    | 101.1         | 273             | 490             | 1861.4                                   | NO                             |
| 0710000     | FPL - Fort Myers <sup>c</sup>                | Lee        | 422.1           | 2952.9     | -102.8                             | 12.8   | 103.6         | 277             | 22,702          | 1911.9                                   | YES                            |
|             | Fort Pierce Utilities <sup>c</sup>           | St. Lucie  | 566.8           | 3036.3     | 41.9                               | 96.2   | 104.9         | 24              | 2,708           | 1938.6                                   | YES                            |
|             | Vero Beach Power <sup>c</sup>                | St. Lucie  | 567.1           | 3056.5     | 42.2                               | 116.4  | 123.8         | 20              | 11,832          | 2316.3                                   | YES                            |

<sup>a</sup> Okeelanta Power Coordinates: 524.9 2940.1

<sup>b</sup> Based on North Carolina Screening Technique for annual average basis. "Dist" is the distance the facility is located from the project and SIA is the significant impact area. The proposed project's emissions are predicted to be significant to 8 km.

<sup>c</sup> Large sources (> 1,000 TPY) beyond the screening area (58 km) that were included in the inventory.

Note: deg = Degrees  
 Km = Kilometers  
 SIA = Significant impact area  
 TPY = Tons per year

Table 2-4. Summary of SO<sub>2</sub> Facilities Included in the PSD Class I Air Modeling Analysis

| AIRS Number | Facility                        | County     | UTM Coordinates |            | Relative to Everglades National Park |        |                            |                 |
|-------------|---------------------------------|------------|-----------------|------------|--------------------------------------|--------|----------------------------|-----------------|
|             |                                 |            | East (km)       | North (km) | X (km)                               | Y (km) | Distance <sup>a</sup> (km) | Direction (deg) |
| 0250348     | Dade Co. Resource Recovery      | Dade       | 564.3           | 2857.4     | 14.0                                 | 8.8    | 16.5                       | 58              |
| 0250020     | Tarmac                          | Dade       | 562.9           | 2861.7     | 12.6                                 | 13.1   | 18.2                       | 44              |
| 0112119     | South Broward Resource Recovery | Broward    | 579.6           | 2883.3     | 29.3                                 | 34.7   | 45.4                       | 40              |
| 0110037     | FPL -Lauderdale                 | Broward    | 580.1           | 2883.3     | 29.8                                 | 34.7   | 45.7                       | 41              |
| 0110120     | North Broward Resource Recovery | Broward    | 583.6           | 2907.6     | 33.3                                 | 59.0   | 67.7                       | 29              |
| 0710019     | Lee County Resource Recovery    | Lee        | 424.0           | 2946.0     | -30.0                                | 82.0   | 87.3 <sup>b</sup>          | 340             |
| 0990332     | Okeelanta                       | Palm Beach | 525.0           | 2937.4     | -25.3                                | 88.8   | 92.3                       | 344             |
| 0710000     | FPL - Fort Myers                | Lee        | 422.1           | 2952.9     | -31.9                                | 88.9   | 94.5 <sup>b</sup>          | 340             |
| 0990016     | Atlantic Sugar                  | Palm Beach | 552.9           | 2945.2     | 2.6                                  | 96.6   | 96.6                       | 2               |
| 0990568     | Lake Worth Utilities            | Palm Beach | 592.8           | 2943.7     | 42.5                                 | 95.1   | 104.2                      | 24              |
| 0990026     | Sugar Cane Growers Coop.        | Palm Beach | 534.9           | 2953.3     | -15.4                                | 104.7  | 105.8                      | 352             |
| 0510003     | U.S. Sugar Clewiston            | Hendry     | 506.1           | 2956.9     | -44.2                                | 108.3  | 117.0                      | 338             |
| 0990234     | Palm Beach Resource Recovery    | Palm Beach | 585.8           | 2960.2     | 35.5                                 | 111.6  | 117.1                      | 18              |
| 0990019     | Osceola Farms                   | Palm Beach | 544.2           | 2968.0     | -6.1                                 | 119.4  | 119.6                      | 357             |
| 0990061     | U.S. Sugar -Bryant              | Palm Beach | 538.8           | 2968.1     | -11.5                                | 119.5  | 120.1                      | 355             |
| 0510015     | Southern Gardens Citrus         | Hendry     | 487.6           | 2957.6     | -62.7                                | 109.0  | 125.7                      | 330             |
| 0990021     | Pratt & Whitney                 | Palm Beach | 559.2           | 2978.3     | 8.9                                  | 129.7  | 130.0                      | 4               |
| 0850102     | Bechtel Indiantown              | Martin     | 545.6           | 2991.5     | -4.7                                 | 142.9  | 143.0                      | 358             |
| 0850001     | FPL -Martin                     | Martin     | 543.1           | 2992.9     | -7.2                                 | 144.3  | 144.5                      | 357             |

<sup>a</sup> Distance from the northeast corner of the Everglades National Park, unless otherwise noted.

<sup>b</sup> Distance from the northwestern corner of the Everglades National Park: 454 2864.0

Table 2-5. Summary of SO<sub>2</sub> Sources Included in the Air Modeling Analysis

| AIRS<br>Number | Facility                                  | Units                              | Modeling<br>ID Name | Stack and Operating Parameters |                 |                |                   | Emission Rate (g/s) |         | PSD Source?<br>(EXP/CON) | Modeled in |          |         |
|----------------|---|------------------------------------|---------------------|--------------------------------|-----------------|----------------|-------------------|---------------------|---------|--------------------------|------------|----------|---------|
|                |   |                                    |                     | Height<br>(m)                  | Diameter<br>(m) | Temper.<br>(K) | Velocity<br>(m/s) | 3-Hour              | 24-Hour |                          | AAQS       | Class II | Class I |
| 50PMB500332    | Okeelanta <sup>a</sup>                    |                                    |                     |                                |                 |                |                   |                     |         |                          |            |          |         |
|                |   | Boiler 4 PSD Baseline              | OKBLR4B             | 22.9                           | 2.29            | 333.0          | 7.36              | -10.95              | -10.95  | EXP                      | No         | Yes      | Yes     |
|                |   | Boiler 5 PSD Baseline              | OKBLR5B             | 22.9                           | 2.29            | 333.0          | 12.07             | -15.64              | -15.64  | EXP                      | No         | Yes      | Yes     |
|                |   | Boiler 6 PSD Baseline              | OKBLR6B             | 22.9                           | 2.29            | 334.0          | 8.74              | -15.64              | -15.64  | EXP                      | No         | Yes      | Yes     |
|                |   | Boiler 10 PSD Baseline             | OKBLR10B            | 22.9                           | 2.29            | 334.0          | 10.35             | -17.15              | -17.15  | EXP                      | No         | Yes      | Yes     |
|                |   | Boiler 11 PSD Baseline             | OKBLR11B            | 22.9                           | 2.29            | 342.0          | 9.89              | -16.79              | -16.79  | EXP                      | No         | Yes      | Yes     |
|                |   | Boiler 16 PSD Baseline             | OKBLR16B            | 22.9                           | 1.52            | 483.0          | 22.86             | -1.47               | -1.47   | EXP                      | No         | Yes      | Yes     |
| 0990026        | Sugar Cane Growers <sup>a</sup>           |                                    |                     |                                |                 |                |                   |                     |         |                          |            |          |         |
|                |   | Unit 1&2                           | SUGCN12             | 45.7                           | 1.87            | 339.0          | 21.75             | 41.20               | 41.20   | CON                      | Yes        | Yes      | Yes     |
|                |   | Unit 3                             | SUGCN3              | 27.4                           | 1.52            | 339.0          | 22.25             | 16.20               | 16.20   | CON                      | Yes        | Yes      | Yes     |
|                |   | Unit 4 PSD                         | SUGCN4              | 54.9                           | 2.44            | 339.0          | 21.73             | 38.20               | 38.20   | CON                      | Yes        | Yes      | Yes     |
|                |   | Unit 5                             | SUGCN5              | 45.7                           | 2.30            | 339.0          | 15.94             | 27.90               | 27.90   | CON                      | Yes        | Yes      | Yes     |
|                |   | Unit 8 PSD                         | SUGCN8              | 47.2                           | 2.90            | 339.0          | 13.62             | 23.50               | 23.50   | CON                      | Yes        | Yes      | Yes     |
|                |   | Unit 1&2 PSD Baseline              | SUGCN12B            | 24.4                           | 1.40            | 344.0          | 11.40             | -24.20              | -24.20  | EXP                      | No         | Yes      | Yes     |
|                |   | Unit 3 PSD Baseline                | SUGCN3B             | 24.4                           | 1.60            | 344.0          | 15.60             | -4.40               | -4.40   | EXP                      | No         | Yes      | Yes     |
|                |   | Unit 4 PSD Baseline                | SUGCN4B             | 25.9                           | 1.63            | 344.0          | 11.20             | -24.20              | -24.20  | EXP                      | No         | Yes      | Yes     |
|                |   | Unit 5 PSD Baseline                | SUGCN5B             | 24.4                           | 1.40            | 344.0          | 15.20             | -16.20              | -16.20  | EXP                      | No         | Yes      | Yes     |
|                |   | Unit 6&7 PSD Baseline              | SUGCN67B            | 12.2                           | 1.52            | 606.0          | 11.20             | -51.00              | -51.00  | EXP                      | No         | Yes      | Yes     |
| 0510001        | Everglades Sugar <sup>b</sup> Main Boiler |                                    | EVERGLAD            | 21.9                           | 1.10            | 477.0          | 10.10             | 34.90               | 34.90   | NO                       | Yes        | No       | No      |
| 0510003        | US Sugar - Clewiston <sup>c</sup>         |                                    |                     |                                |                 |                |                   |                     |         |                          |            |          |         |
|                |   | PSD Baseline (On-crop season only) |                     |                                |                 |                |                   |                     |         |                          |            |          |         |
|                |   | Unit 1 PSD Baseline                | USSBRL1B            | 23.1                           | 1.86            | 344.0          | 30.20             | -79.86              | -58.21  | EXP                      | No         | Yes      | Yes     |
|                |   | Unit 2 PSD Baseline                | USSBLR2B            | 23.1                           | 1.86            | 343.0          | 35.70             | -79.86              | -58.21  | EXP                      | No         | Yes      | Yes     |
|                |   | Unit 3 PSD Baseline                | USSBLR3B            | 27.4                           | 2.29            | 342.0          | 14.70             | -48.30              | -33.20  | EXP                      | No         | Yes      | Yes     |
|                |   | East Pellet Plant PSD Baseline     | EPELLET             | 12.2                           | 1.52            | 347.0          | 8.54              | -10.30              | -10.30  | EXP                      | No         | Yes      | Yes     |
|                |   | West Pellet Plant PSD Baseline     | WPELLET             | 15.7                           | 1.52            | 347.0          | 8.54              | -10.30              | -10.30  | EXP                      | No         | Yes      | Yes     |
|                |   | On-crop season future              |                     |                                |                 |                |                   |                     |         |                          |            |          |         |
|                |   | Unit 1                             | USSBRL1N            | 65.0                           | 2.44            | 347.0          | 15.36             | 78.79               | 73.73   | CON                      | Yes        | Yes      | Yes     |
|                |   | Unit 2                             | USSBLR2N            | 65.0                           | 2.44            | 338.0          | 13.86             | 78.49               | 73.44   | CON                      | Yes        | Yes      | Yes     |
|                |   | Unit 3                             | USSBLR3N            | 65.0                           | 2.44            | 333.2          | 6.78              | 47.08               | 47.08   | CON                      | Yes        | Yes      | Yes     |
|                |   | Unit 4                             | USSBLR4N            | 45.7                           | 2.51            | 344.3          | 20.28             | 21.53               | 3.68    | CON                      | Yes        | Yes      | Yes     |
|                |   | Unit 7                             | USSBLR7N            | 68.6                           | 2.59            | 405.4          | 20.77             | 13.91               | 12.65   | CON                      | Yes        | Yes      | Yes     |
|                |   | Off-crop season future             |                     |                                |                 |                |                   |                     |         |                          |            |          |         |
|                |   | Unit 1                             | USSBRL1F            | 65.0                           | 2.44            | 347.0          | 14.05             | 51.64               | 24.29   | CON                      | Yes        | Yes      | Yes     |
|                |   | Unit 2                             | USSBLR2F            | 65.0                           | 2.44            | 338.0          | 12.68             | 51.27               | 24.02   | CON                      | Yes        | Yes      | Yes     |
|                |   | Unit 3                             | USSBLR3F            | 65.0                           | 2.44            | 333.2          | 6.20              | 30.74               | 30.20   | CON                      | Yes        | Yes      | Yes     |
|                |   | Unit 4                             | USSBLR4F            | 45.7                           | 2.51            | 344.3          | 0.00              | 0.00                | 0.00    | CON                      | Yes        | Yes      | Yes     |



Table 2-5. Summary of SO<sub>2</sub> Sources Included in the Air Modeling Analysis

| AIRS Number | Facility                      | Units                   | Modeling ID Name | Stack and Operating Parameters |              |             |                | Emission Rate (g/s) |         | PSD Source? (EXP/CON) | Modeled in      |                 |         |
|-------------|-------------------------------|-------------------------|------------------|--------------------------------|--------------|-------------|----------------|---------------------|---------|-----------------------|-----------------|-----------------|---------|
|             |                               |                         |                  | Height (m)                     | Diameter (m) | Temper. (K) | Velocity (m/s) | 3-Hour              | 24-Hour |                       | AAQS            | Class II        | Class I |
|             |                               | Unit 7                  | USSBLR7F         | 68.6                           | 2.59         | 405.4       | 23.60          | 17.39               | 15.81   | CON                   | Yes             | Yes             | Yes     |
| 0990016     | Atlantic Sugar <sup>a</sup>   |                         |                  |                                |              |             |                |                     |         |                       |                 |                 |         |
|             |                               | Unit 1                  | ATLSUG1          | 27.4                           | 1.83         | 346.0       | 17.97          | 16.28               | 16.28   | CON                   | Yes             | Yes             | Yes     |
|             |                               | Unit 2                  | ATLSUG2          | 27.4                           | 1.83         | 350.0       | 23.36          | 16.28               | 16.28   | CON                   | Yes             | Yes             | Yes     |
|             |                               | Unit 3                  | ATLSUG3          | 27.4                           | 1.83         | 350.0       | 21.56          | 16.02               | 16.02   | CON                   | Yes             | Yes             | Yes     |
|             |                               | Unit 4                  | ATLSUG4          | 27.4                           | 1.83         | 344.0       | 25.16          | 16.21               | 16.21   | CON                   | Yes             | Yes             | Yes     |
|             |                               | Unit 5 PSD <sup>b</sup> | ATLSUG5          | 27.4                           | 1.68         | 339.0       | 19.24          | 8.41                | 8.04    | CON                   | Yes             | Yes             | Yes     |
|             |                               | Unit 1 PSD Baseline     | ATLSUG1B         | 18.9                           | 1.92         | 506.0       | 12.70          | -17.24              | -17.24  | EXP                   | No              | Yes             | Yes     |
|             |                               | Unit 2 PSD Baseline     | ATLSUG2B         | 18.9                           | 1.92         | 511.0       | 10.90          | -22.50              | -22.50  | EXP                   | No              | Yes             | Yes     |
|             |                               | Unit 3 PSD Baseline     | ATLSUG3B         | 21.9                           | 1.83         | 522.0       | 17.50          | -16.88              | -16.88  | EXP                   | No              | Yes             | Yes     |
|             |                               | Unit 4 PSD Baseline     | ATLSUG4B         | 18.3                           | 1.83         | 344.0       | 15.00          | -10.76              | -10.76  | EXP                   | No              | Yes             | Yes     |
| 0990061     | US Sugar-Bryant <sup>a</sup>  |                         |                  |                                |              |             |                |                     |         |                       |                 |                 |         |
|             |                               | Unit 5 PSD              | USSBRY5          | 42.7                           | 2.90         | 345.0       | 11.49          | 45.70               | 45.70   | CON                   | Yes             | Yes             | Yes     |
|             |                               | Unit 1,2&3              | USBRY123         | 19.8                           | 1.64         | 342.0       | 36.40          | 109.50              | 109.50  | CON                   | Yes             | Yes             | Yes     |
|             |                               | Unit 1 PSD Baseline     | USSBRY1B         | 19.8                           | 1.68         | 494.0       | 44.30          | -36.50              | -36.50  | EXP                   | No              | Yes             | Yes     |
|             |                               | Unit 2&3 PSD Baseline   | USBRY23B         | 19.8                           | 1.68         | 344.0       | 37.90          | -73.00              | -73.00  | EXP                   | No              | Yes             | Yes     |
| 0990019     | Osceola Farms <sup>a</sup>    |                         |                  |                                |              |             |                |                     |         |                       |                 |                 |         |
|             |                               | Unit 2                  | OSBLR2           | 27.4                           | 1.52         | 339.0       | 18.63          | 17.12               | 17.12   | CON                   | Yes             | Yes             | Yes     |
|             |                               | Unit 3                  | OSBLR3           | 27.4                           | 1.92         | 344.0       | 14.34          | 30.74               | 30.74   | CON                   | Yes             | Yes             | Yes     |
|             |                               | Unit 4                  | OSBLR4           | 27.4                           | 1.83         | 344.0       | 16.53          | 17.12               | 17.12   | CON                   | Yes             | Yes             | Yes     |
|             |                               | Unit 5                  | OSBLR5           | 27.4                           | 1.52         | 344.0       | 17.85          | 18.00               | 18.00   | CON                   | Yes             | Yes             | Yes     |
|             |                               | Unit 6                  | OSBLR6           | 27.4                           | 1.92         | 339.0       | 18.25          | 33.39               | 33.39   | CON                   | Yes             | Yes             | Yes     |
|             |                               | Unit 1 PSD Baseline     | OSBLR1B          | 22.0                           | 1.52         | 342.0       | 8.18           | -5.07               | -5.07   | EXP                   | No              | Yes             | Yes     |
|             |                               | Unit 2 PSD Baseline     | OSBLR2B          | 22.0                           | 1.52         | 341.0       | 18.10          | -16.32              | -16.32  | EXP                   | No              | Yes             | Yes     |
|             |                               | Unit 3 PSD Baseline     | OSBLR3B          | 22.0                           | 1.93         | 341.0       | 14.50          | -7.26               | -7.26   | EXP                   | No              | Yes             | Yes     |
|             |                               | Unit 4 PSD Baseline     | OSBLR4B          | 22.0                           | 1.83         | 341.0       | 18.80          | -13.61              | -13.61  | EXP                   | No              | Yes             | Yes     |
| 50FTM260015 | Southern Gardens Citrus - PSD |                         |                  |                                |              |             |                |                     |         |                       |                 |                 |         |
|             |                               | Peel Dryer              | SGARDDRY         | 38.1                           | 1.73         | 316.0       | 7.45           | 5.29                | 5.29    | CON                   | No <sup>c</sup> | No <sup>c</sup> | Yes     |
|             |                               | Boilers 1-3             | SGARDBLR         | 16.8                           | 1.22         | 478.0       | 14.22          | 6.88                | 6.88    | CON                   | No <sup>c</sup> | No <sup>c</sup> | Yes     |
| 990021      | Pratt & Whitney               |                         |                  |                                |              |             |                |                     |         |                       |                 |                 |         |
|             |                               | Heater                  | PRATARCH         | 15.2                           | 0.91         | 810.9       | 143.73         | 13.99               | 13.99   | CON                   | No <sup>c</sup> | No <sup>c</sup> | Yes     |
|             |                               | Boiler BO-12            | PRATBO12         | 4.6                            | 0.76         | 533.2       | 6.92           | 0.51                | 0.51    | CON                   | No <sup>c</sup> | No <sup>c</sup> | Yes     |
| 0850102     | Bechtel Indiantown PSD        |                         | BECHTIND         | 150.9                          | 4.88         | 333.2       | 30.50          | 75.64               | 75.64   | CON                   | Yes             | Yes             | Yes     |
| 0850001     | FPL Martin                    |                         |                  |                                |              |             |                |                     |         |                       |                 |                 |         |
|             |                               | Units 1&2               | MART12           | 152.1                          | 7.99         | 420.9       | 21.03          | 1743.79             | 1743.79 | NO                    | Yes             | No              | No      |
|             |                               | Aux Blr PSD             | MARTAUX          | 18.3                           | 1.10         | 535.4       | 15.24          | 12.90               | 12.90   | CON                   | Yes             | Yes             | Yes     |
|             |                               | Diesel Gens PSD         | MARTGEN          | 7.6                            | 0.30         | 785.9       | 39.62          | 0.51                | 0.51    | CON                   | Yes             | Yes             | Yes     |

Table 2-5. Summary of SO<sub>2</sub> Sources Included in the Air Modeling Analysis

| AIRS<br>Number | Facility                         | Units                      | Modeling<br>ID Name | Stack and Operating Parameters |                 |                |                   | Emission Rate (g/s) |         | PSD Source?<br>(EXP/CON) | Modeled in      |                 |         |
|----------------|----------------------------------|----------------------------|---------------------|--------------------------------|-----------------|----------------|-------------------|---------------------|---------|--------------------------|-----------------|-----------------|---------|
|                |                                  |                            |                     | Height<br>(m)                  | Diameter<br>(m) | Temper.<br>(K) | Velocity<br>(m/s) | 3-Hour              | 24-Hour |                          | AAQS            | Class II        | Class I |
|                |                                  |                            |                     |                                |                 |                |                   |                     |         |                          |                 |                 |         |
|                |                                  | Units 3&4 PSD              | MART34              | 64.9                           | 6.10            | 410.9          | 18.90             | 470.40              | 470.40  | CON                      | Yes             | Yes             | Yes     |
|                |                                  | 2 Simple Cycle CT          | MARTCTs             | 18.3                           | 6.17            | 853.2          | 37.63             | 25.98               | 25.98   | CON                      | Yes             | Yes             | Yes     |
| 0990234        | Palm Beach Co. Resource Recovery | 1&2 PSD                    | PBCRRF              | 76.2                           | 2.04            | 505.2          | 24.90             | 85.05               | 85.05   | CON                      | Yes             | Yes             | Yes     |
| 110120         | North Broward RRF PSD            |                            | NBCRRF              | 58.5                           | 3.96            | 381.0          | 18.01             | 35.40               | 35.40   | CON                      | No <sup>c</sup> | No <sup>c</sup> | Yes     |
| 0990568        | Lake Worth Utilities             | Unit 3                     | LAKWTHU3            | 38.1                           | 2.13            | 408.2          | 7.71              | 103.95              | 103.95  | NO                       | Yes             | No              | No      |
|                |                                  | Unit 4                     | LAKWTHU4            | 35.1                           | 2.29            | 418.2          | 17.00             | 129.85              | 129.85  | NO                       | Yes             | No              | No      |
|                |                                  | Unit 5                     | LAKWTHU5            | 22.9                           | 0.94            | 450.4          | 18.29             | 11.59               | 11.59   | NO                       | Yes             | No              | No      |
|                |                                  | HRSG                       | LAKWTHHR            | 45.7                           | 5.49            | 377.6          | 13.74             | 12.79               | 12.79   | CON                      | Yes             | Yes             | Yes     |
| 0990042        | FPL Riviera                      | Units 3&4 at 2.5% fuel oil | RIVU34              | 90.8                           | 4.88            | 401.5          | 18.90             | 2113.65             | 2113.65 | NO                       | Yes             | No              | No      |
| 0112119        | South Broward RRF PSD            |                            | SBCRRF              | 59.4                           | 3.96            | 381.0          | 18.01             | 37.91               | 37.91   | CON                      | Yes             | Yes             | Yes     |
| 0110037        | FPL - Lauderdale                 | CTs 1-4 PSD                | LAUDU45             | 45.7                           | 5.49            | 438.7          | 14.60             | 271.15              | 271.15  | CON                      | Yes             | Yes             | Yes     |
|                |                                  | GT 1-12 (0.5% fuel oil)    | LDGT1_12            | 13.7                           | 2.37            | 733.2          | 114.31            | 552.80              | 552.80  | NO                       | Yes             | No              | No      |
|                |                                  | GT 13-24 (0.5% fuel oil)   | LDGT1324            | 13.4                           | 4.75            | 733.2          | 28.43             | 552.80              | 552.80  | NO                       | Yes             | No              | No      |
|                |                                  | 4&5 PSD Baseline           | FTLAU45B            | 46.0                           | 4.27            | 422.0          | 14.63             | -457.00             | -457.00 | EXP                      | No              | Yes             | Yes     |
|                | FPL Port Everglades              | Units 1&2 at 2.5% fuel oil | PTEVU12             | 104.5                          | 4.27            | 415.9          | 26.72             | 1593.90             | 1593.90 | NO                       | Yes             | No              | No      |
|                |                                  | Units 3&4 at 2.5% fuel oil | PTEVU34             | 104.5                          | 5.52            | 414.8          | 23.88             | 2772.00             | 2772.00 | NO                       | Yes             | No              | No      |
|                |                                  | GT 1-12 (0.5% fuel oil)    | PTEVGTS             | 13.4                           | 4.75            | 733.2          | 28.43             | 530.70              | 530.70  | NO                       | Yes             | No              | No      |
| 0250020        | Tarmac                           | Kiln 1                     | TARMC1              | 61.0                           | 2.44            | 465.0          | 12.80             | 5.67                | 5.67    | NO                       | Yes             | No              | No      |
|                |                                  | Kiln 2 PSD Baseline        | TARMC2B             | 61.0                           | 2.44            | 465.0          | 12.84             | -5.71               | -5.71   | EXP                      | No              | Yes             | Yes     |
|                |                                  | Kiln 3 PSD Baseline        | TARMC3B             | 61.0                           | 4.57            | 472.0          | 10.78             | -2.76               | -2.76   | EXP                      | No              | Yes             | Yes     |
|                |                                  | Kiln 2 PSD                 | TABMC2P             | 61.0                           | 2.44            | 422.0          | 9.10              | 24.57               | 24.57   | CON                      | Yes             | Yes             | Yes     |
|                |                                  | Kiln 3 PSD                 | TARMC3P             | 61.0                           | 4.57            | 450.0          | 11.04             | 51.43               | 51.43   | CON                      | Yes             | Yes             | Yes     |
| 0250348        | Dade County RRF PSD              | Units 1&2                  | DCRRF12             | 76.2                           | 3.66            | 405.4          | 15.86             | 26.41               | 12.32   | CON                      | No <sup>c</sup> | No <sup>c</sup> | Yes     |
|                |                                  | Units 3&4                  | DCRRF34             | 76.2                           | 3.66            | 405.4          | 15.86             | 26.41               | 12.32   | CON                      | No <sup>c</sup> | No <sup>c</sup> | Yes     |
| 0710019        | Lee County RRF PSD               |                            | LEECORRF            | 83.8                           | 1.88            | 388.5          | 19.81             | 14.00               | 14.00   | CON                      | No <sup>c</sup> | No <sup>c</sup> | Yes     |
| 0710000        | FPL Fort Myers                   |                            |                     |                                |                 |                |                   |                     |         |                          |                 |                 |         |

Table 2-5. Summary of SO<sub>2</sub> Sources Included in the Air Modeling Analysis

| AIRS<br>Number | Facility               | Units              | Modeling<br>ID Name | Stack and Operating Parameters |                 |                |                   | Emission Rate (g/s) |         | PSD Source?<br>(EXP/CON) | Modeled in |          |         |
|----------------|------------------------|--------------------|---------------------|--------------------------------|-----------------|----------------|-------------------|---------------------|---------|--------------------------|------------|----------|---------|
|                |                        |                    |                     | Height<br>(m)                  | Diameter<br>(m) | Temper.<br>(K) | Velocity<br>(m/s) | 3-Hour              | 24-Hour |                          | AAQS       | Class II | Class I |
|                |                        | Unit 1 PSD         | FMU1                | 91.8                           | 2.90            | 422.0          | 29.90             | -585.50             | -585.50 | EXP                      | No         | Yes      | Yes     |
|                |                        | Unit 2 PSD         | FMU2                | 121.2                          | 5.52            | 408.0          | 19.20             | -1334               | -1334.0 | EXP                      | No         | Yes      | Yes     |
|                |                        | HRSGs 1 - 6        | FMYHR1_6            | 38.1                           | 5.79            | 377.6          | 14.2              | 3.86                | 3.9     | CON                      | Yes        | Yes      | Yes     |
|                |                        | Gas Turbines 1 -12 | FMYGT112            | 9.75                           | 4.42            | 797.0          | 35.7              | 649.2               | 649.2   | NO                       | Yes        | No       | No      |
|                | Fort Pierce Utilities  |                    |                     |                                |                 |                |                   |                     |         |                          |            |          |         |
|                | Units 6&7              |                    | FTPIER67            | 45.7                           | 2.19            | 408.2          | 12.50             | 77.87               | 77.87   | NO                       | Yes        | No       | No      |
|                | Vero Beach Power       |                    |                     |                                |                 |                |                   |                     |         |                          |            |          |         |
|                | Unit 1                 |                    | VERBU1              | 60.96                          | 1.07            | 437.0          | 32.42             | 28.77               | 28.77   | NO                       | Yes        | No       | No      |
|                | Unit 2                 |                    | VERBU2              | 60.96                          | 1.07            | 434.3          | 37.57             | 84.21               | 84.21   | NO                       | Yes        | No       | No      |
|                | Unit 3                 |                    | VERBU3              | 60.96                          | 1.83            | 440.4          | 19.93             | 142.07              | 142.07  | NO                       | Yes        | No       | No      |
|                | Unit 4                 |                    | VERBU4              | 60.96                          | 2.13            | 425.4          | 24.36             | 69.05               | 69.05   | NO                       | Yes        | No       | No      |
|                | Unit 5 Simple Cycle CT |                    | VERBU5              | 38.10                          | 3.35            | 416.5          | 19.56             | 15.50               | 15.50   | CON                      | Yes        | Yes      | No      |

<sup>a</sup> Facilities or sources within facilities that operate only during the October 1 through April 31 crop season.

<sup>b</sup> Sugar mill sources that operate all year.

<sup>c</sup> Large source outside the 24-hour significant impact distance, but included in analysis.

<sup>d</sup> Future data represents worst case emissions for May 1 through September 31 off-crop season operation, and October 1-April 30 for on-crop season.

Updated from PSD modeling information, Golder Associates (7/18/00). Baseline data represents November 1 though April 30.

<sup>e</sup> Not included in the AAQS or PSD Class II modeling because they screened out.

Note: EXP = PSD expanding source  
 CON = PSD consuming source  
 NO = Source does not affect PSD increment

Table 3-1. Okeelanta Power, L.P. Property Boundary Receptors<sup>a</sup> Used In the Modeling Analysis

| Coordinates <sup>b</sup> |        | Coordinates <sup>b</sup> |        | Coordinates <sup>b</sup> |        | Coordinates <sup>b</sup> |        | Coordinates <sup>b</sup> |        |
|--------------------------|--------|--------------------------|--------|--------------------------|--------|--------------------------|--------|--------------------------|--------|
| X                        | Y      | X                        | Y      | X                        | Y      | X                        | Y      | X                        | Y      |
| (m)                      | (m)    | (m)                      | (m)    | (m)                      | (m)    | (m)                      | (m)    | (m)                      | (m)    |
| -9699.6                  | 444.2  | -9509.5                  | 3738.7 | -6259.5                  | 3791.6 | -2959.5                  | 3791.6 | 340.5                    | 3791.6 |
| -9693.9                  | 544.0  | -9459.5                  | 3791.6 | -6159.5                  | 3791.6 | -2859.5                  | 3791.6 | 440.5                    | 3791.6 |
| -9688.1                  | 643.9  | -9359.5                  | 3791.6 | -6059.5                  | 3791.6 | -2759.5                  | 3791.6 | 540.5                    | 3791.6 |
| -9682.3                  | 743.7  | -9259.5                  | 3791.6 | -5959.5                  | 3791.6 | -2659.5                  | 3791.6 | 640.5                    | 3791.6 |
| -9676.6                  | 843.5  | -9159.5                  | 3791.6 | -5859.5                  | 3791.6 | -2559.5                  | 3791.6 | 740.5                    | 3791.6 |
| -9670.8                  | 943.4  | -9059.5                  | 3791.6 | -5759.5                  | 3791.6 | -2459.5                  | 3791.6 | 840.5                    | 3791.6 |
| -9665.1                  | 1043.2 | -8959.5                  | 3791.6 | -5659.5                  | 3791.6 | -2359.5                  | 3791.6 | 940.5                    | 3791.6 |
| -9659.3                  | 1143.0 | -8859.5                  | 3791.6 | -5559.5                  | 3791.6 | -2259.5                  | 3791.6 | 1040.5                   | 3791.6 |
| -9653.5                  | 1242.9 | -8759.5                  | 3791.6 | -5459.5                  | 3791.6 | -2159.5                  | 3791.6 | 1140.5                   | 3791.6 |
| -9647.8                  | 1342.7 | -8659.5                  | 3791.6 | -5359.5                  | 3791.6 | -2059.5                  | 3791.6 | 1240.5                   | 3791.6 |
| -9642.0                  | 1442.5 | -8559.5                  | 3791.6 | -5259.5                  | 3791.6 | -1959.5                  | 3791.6 | 1340.5                   | 3791.6 |
| -9636.3                  | 1542.4 | -8459.5                  | 3791.6 | -5159.5                  | 3791.6 | -1859.5                  | 3791.6 | 1440.5                   | 3791.6 |
| -9630.5                  | 1642.2 | -8359.5                  | 3791.6 | -5059.5                  | 3791.6 | -1759.5                  | 3791.6 | 1540.5                   | 3791.6 |
| -9624.7                  | 1742.0 | -8259.5                  | 3791.6 | -4959.5                  | 3791.6 | -1659.5                  | 3791.6 | 1640.5                   | 3791.6 |
| -9619.0                  | 1841.9 | -8159.5                  | 3791.6 | -4859.5                  | 3791.6 | -1559.5                  | 3791.6 | 1740.5                   | 3791.6 |
| -9613.2                  | 1941.7 | -8059.5                  | 3791.6 | -4759.5                  | 3791.6 | -1459.5                  | 3791.6 | 1840.5                   | 3791.6 |
| -9607.5                  | 2041.5 | -7959.5                  | 3791.6 | -4659.5                  | 3791.6 | -1359.5                  | 3791.6 | 1940.5                   | 3791.6 |
| -9601.7                  | 2141.4 | -7859.5                  | 3791.6 | -4559.5                  | 3791.6 | -1259.5                  | 3791.6 | 2040.5                   | 3791.6 |
| -9595.9                  | 2241.2 | -7759.5                  | 3791.6 | -4459.5                  | 3791.6 | -1159.5                  | 3791.6 | 2140.5                   | 3791.6 |
| -9590.2                  | 2341.0 | -7659.5                  | 3791.6 | -4359.5                  | 3791.6 | -1059.5                  | 3791.6 | 2240.5                   | 3791.6 |
| -9584.4                  | 2440.9 | -7559.5                  | 3791.6 | -4259.5                  | 3791.6 | -959.5                   | 3791.6 | 2306.1                   | 3757.2 |
| -9578.7                  | 2540.7 | -7459.5                  | 3791.6 | -4159.5                  | 3791.6 | -859.5                   | 3791.6 | 2306.1                   | 3657.2 |
| -9572.9                  | 2640.5 | -7359.5                  | 3791.6 | -4059.5                  | 3791.6 | -759.5                   | 3791.6 | 2306.1                   | 3557.2 |
| -9567.1                  | 2740.4 | -7259.5                  | 3791.6 | -3959.5                  | 3791.6 | -659.5                   | 3791.6 | 2306.1                   | 3457.2 |
| -9561.4                  | 2840.2 | -7159.5                  | 3791.6 | -3859.5                  | 3791.6 | -559.5                   | 3791.6 | 2306.1                   | 3357.2 |
| -9555.6                  | 2940.0 | -7059.5                  | 3791.6 | -3759.5                  | 3791.6 | -459.5                   | 3791.6 | 2306.1                   | 3257.2 |
| -9549.9                  | 3039.9 | -6959.5                  | 3791.6 | -3659.5                  | 3791.6 | -359.5                   | 3791.6 | 2306.1                   | 3157.2 |
| -9544.1                  | 3139.7 | -6859.5                  | 3791.6 | -3559.5                  | 3791.6 | -259.5                   | 3791.6 | 2306.1                   | 3057.2 |
| -9538.3                  | 3239.5 | -6759.5                  | 3791.6 | -3459.5                  | 3791.6 | -159.5                   | 3791.6 | 2306.1                   | 2957.2 |
| -9532.6                  | 3339.4 | -6659.5                  | 3791.6 | -3359.5                  | 3791.6 | -59.5                    | 3791.6 | 2306.1                   | 2857.2 |
| -9526.8                  | 3439.2 | -6559.5                  | 3791.6 | -3259.5                  | 3791.6 | 40.5                     | 3791.6 | 2306.1                   | 2757.2 |
| -9521.1                  | 3539.0 | -6459.5                  | 3791.6 | -3159.5                  | 3791.6 | 140.5                    | 3791.6 | 2306.1                   | 2657.2 |
| -9515.3                  | 3638.9 | -6359.5                  | 3791.6 | -3059.5                  | 3791.6 | 240.5                    | 3791.6 | 2306.1                   | 2557.2 |

Table 3-1. Okeelanta Power, L.P. Property Boundary Receptors<sup>a</sup> Used In the Modeling Analysis (continued)

| Coordinates <sup>b</sup> |        | Coordinates <sup>b</sup> |         | Coordinates <sup>b</sup> |         | Coordinates <sup>b</sup> |         | Coordinates <sup>b</sup> |         |
|--------------------------|--------|--------------------------|---------|--------------------------|---------|--------------------------|---------|--------------------------|---------|
| X                        | Y      | X                        | Y       | X                        | Y       | X                        | Y       | X                        | Y       |
| (m)                      | (m)    | (m)                      | (m)     | (m)                      | (m)     | (m)                      | (m)     | (m)                      | (m)     |
| 2306.1                   | 2457.2 | 3448.7                   | 299.8   | 3696.1                   | -2838.9 | 396.1                    | -2838.9 | -2903.9                  | -2838.9 |
| 2306.1                   | 2357.2 | 3448.7                   | 199.8   | 3596.1                   | -2838.9 | 296.1                    | -2838.9 | -3003.9                  | -2838.9 |
| 2306.1                   | 2257.2 | 3448.7                   | 99.8    | 3496.1                   | -2838.9 | 196.1                    | -2838.9 | -3103.9                  | -2838.9 |
| 2306.1                   | 2157.2 | 3448.7                   | -0.2    | 3396.1                   | -2838.9 | 96.1                     | -2838.9 | -3203.9                  | -2838.9 |
| 2366.8                   | 2117.9 | 3448.7                   | -100.2  | 3296.1                   | -2838.9 | -3.9                     | -2838.9 | -3303.9                  | -2838.9 |
| 2466.8                   | 2117.9 | 3448.7                   | -200.2  | 3196.1                   | -2838.9 | -103.9                   | -2838.9 | -3403.9                  | -2838.9 |
| 2566.8                   | 2117.9 | 3448.7                   | -300.2  | 3096.1                   | -2838.9 | -203.9                   | -2838.9 | -3503.9                  | -2838.9 |
| 2666.8                   | 2117.9 | 3448.7                   | -400.2  | 2996.1                   | -2838.9 | -303.9                   | -2838.9 | -3603.9                  | -2838.9 |
| 2766.8                   | 2117.9 | 3448.7                   | -500.2  | 2896.1                   | -2838.9 | -403.9                   | -2838.9 | -3703.9                  | -2838.9 |
| 2866.8                   | 2117.9 | 3448.7                   | -600.2  | 2796.1                   | -2838.9 | -503.9                   | -2838.9 | -3803.9                  | -2838.9 |
| 2966.8                   | 2117.9 | 3448.7                   | -700.2  | 2696.1                   | -2838.9 | -603.9                   | -2838.9 | -3903.9                  | -2838.9 |
| 3066.8                   | 2117.9 | 3448.7                   | -800.2  | 2596.1                   | -2838.9 | -703.9                   | -2838.9 | -4003.9                  | -2838.9 |
| 3166.8                   | 2117.9 | 3448.7                   | -900.2  | 2496.1                   | -2838.9 | -803.9                   | -2838.9 | -4103.9                  | -2838.9 |
| 3266.8                   | 2117.9 | 3448.7                   | -1000.2 | 2396.1                   | -2838.9 | -903.9                   | -2838.9 | -4203.9                  | -2838.9 |
| 3366.8                   | 2117.9 | 3448.7                   | -1100.2 | 2296.1                   | -2838.9 | -1003.9                  | -2838.9 | -4303.9                  | -2838.9 |
| 3448.7                   | 2099.8 | 3448.7                   | -1200.2 | 2196.1                   | -2838.9 | -1103.9                  | -2838.9 | -4403.9                  | -2838.9 |
| 3448.7                   | 1999.8 | 3448.7                   | -1300.2 | 2096.1                   | -2838.9 | -1203.9                  | -2838.9 | -4503.9                  | -2838.9 |
| 3448.7                   | 1899.8 | 3448.7                   | -1400.2 | 1996.1                   | -2838.9 | -1303.9                  | -2838.9 | -4603.9                  | -2838.9 |
| 3448.7                   | 1799.8 | 3448.7                   | -1500.2 | 1896.1                   | -2838.9 | -1403.9                  | -2838.9 | -4703.9                  | -2838.9 |
| 3448.7                   | 1699.8 | 3448.7                   | -1600.2 | 1796.1                   | -2838.9 | -1503.9                  | -2838.9 | -4803.9                  | -2838.9 |
| 3448.7                   | 1599.8 | 3448.7                   | -1700.2 | 1696.1                   | -2838.9 | -1603.9                  | -2838.9 | -4903.9                  | -2838.9 |
| 3448.7                   | 1499.8 | 3448.7                   | -1800.2 | 1596.1                   | -2838.9 | -1703.9                  | -2838.9 | -5003.9                  | -2838.9 |
| 3448.7                   | 1399.8 | 3448.7                   | -1900.2 | 1496.1                   | -2838.9 | -1803.9                  | -2838.9 | -5103.9                  | -2838.9 |
| 3448.7                   | 1299.8 | 3448.7                   | -2000.2 | 1396.1                   | -2838.9 | -1903.9                  | -2838.9 | -5203.9                  | -2838.9 |
| 3448.7                   | 1199.8 | 3448.7                   | -2100.2 | 1296.1                   | -2838.9 | -2003.9                  | -2838.9 | -5303.9                  | -2838.9 |
| 3448.7                   | 1099.8 | 3483.0                   | -2191.1 | 1196.1                   | -2838.9 | -2103.9                  | -2838.9 | -5403.9                  | -2838.9 |
| 3448.7                   | 999.8  | 3532.4                   | -2278.0 | 1096.1                   | -2838.9 | -2203.9                  | -2838.9 | -5503.9                  | -2838.9 |
| 3448.7                   | 899.8  | 3581.8                   | -2365.0 | 996.1                    | -2838.9 | -2303.9                  | -2838.9 | -5603.9                  | -2838.9 |
| 3448.7                   | 799.8  | 3631.2                   | -2451.9 | 896.1                    | -2838.9 | -2403.9                  | -2838.9 | -5703.9                  | -2838.9 |
| 3448.7                   | 699.8  | 3680.6                   | -2538.9 | 796.1                    | -2838.9 | -2503.9                  | -2838.9 | -5803.9                  | -2838.9 |
| 3448.7                   | 599.8  | 3730.0                   | -2625.8 | 696.1                    | -2838.9 | -2603.9                  | -2838.9 | -5903.9                  | -2838.9 |
| 3448.7                   | 499.8  | 3779.4                   | -2712.8 | 596.1                    | -2838.9 | -2703.9                  | -2838.9 | -6003.9                  | -2838.9 |
| 3448.7                   | 399.8  | 3828.8                   | -2799.7 | 496.1                    | -2838.9 | -2803.9                  | -2838.9 | -6103.9                  | -2838.9 |

Table 3-1. Okeelanta Power, L.P. Property Boundary Receptors<sup>a</sup> Used In the Modeling Analysis (continued)

| Coordinates <sup>b</sup> |         | Coordinates <sup>b</sup> |         |
|--------------------------|---------|--------------------------|---------|
| X                        | Y       | X                        | Y       |
| (m)                      | (m)     | (m)                      | (m)     |
| -6203.9                  | -2838.9 | -9120.5                  | -2368.5 |
| -6303.9                  | -2838.9 | -9140.7                  | -2270.6 |
| -6403.9                  | -2838.9 | -9160.9                  | -2172.6 |
| -6503.9                  | -2838.9 | -9181.0                  | -2074.7 |
| -6603.9                  | -2838.9 | -9201.2                  | -1976.7 |
| -6703.9                  | -2838.9 | -9221.4                  | -1878.8 |
| -6803.9                  | -2838.9 | -9241.5                  | -1780.9 |
| -6903.9                  | -2838.9 | -9261.7                  | -1682.9 |
| -7003.9                  | -2838.9 | -9281.9                  | -1585.0 |
| -7103.9                  | -2838.9 | -9302.0                  | -1487.0 |
| -7203.9                  | -2838.9 | -9322.2                  | -1389.1 |
| -7303.9                  | -2838.9 | -9342.3                  | -1291.1 |
| -7403.9                  | -2838.9 | -9362.5                  | -1193.2 |
| -7503.9                  | -2838.9 | -9382.7                  | -1095.2 |
| -7603.9                  | -2838.9 | -9402.8                  | -997.3  |
| -7703.9                  | -2838.9 | -9423.0                  | -899.3  |
| -7803.9                  | -2838.9 | -9443.2                  | -801.4  |
| -7903.9                  | -2838.9 | -9463.3                  | -703.5  |
| -8003.9                  | -2838.9 | -9483.5                  | -605.5  |
| -8103.9                  | -2838.9 | -9503.7                  | -507.6  |
| -8203.9                  | -2838.9 | -9523.8                  | -409.6  |
| -8303.9                  | -2838.9 | -9544.0                  | -311.7  |
| -8403.9                  | -2838.9 | -9564.2                  | -213.7  |
| -8503.9                  | -2838.9 | -9584.3                  | -115.8  |
| -8603.9                  | -2838.9 | -9604.5                  | -17.8   |
| -8703.9                  | -2838.9 | -9624.7                  | 80.1    |
| -8803.9                  | -2838.9 | -9644.8                  | 178.1   |
| -8903.9                  | -2838.9 | -9665.0                  | 276.0   |
| -9003.9                  | -2838.9 | -9685.2                  | 373.9   |
| -9039.9                  | -2760.3 |                          |         |
| -9060.0                  | -2662.4 |                          |         |
| -9080.2                  | -2564.4 |                          |         |
| -9100.4                  | -2466.5 |                          |         |

<sup>a</sup> Receptors were selected at 100-meter spacing along property boundary.

<sup>b</sup> Distances are relative to the OkPLP Boiler B stack.

Note: m = meter

Table 3-2. Everglades National Park Receptors Used in the PSD Class I Modeling Analysis

| UTM Coordinates (m) |         | UTM Coordinates (m) |         | UTM Coordinates (m) |         | UTM Coordinates (m) |         |
|---------------------|---------|---------------------|---------|---------------------|---------|---------------------|---------|
| East                | North   | East                | North   | East                | North   | East                | North   |
| 557000              | 2789000 | 538000              | 2848600 | 514500              | 2837000 | 470000              | 2860000 |
| 556600              | 2792000 | 537000              | 2848600 | 514500              | 2836000 | 469000              | 2860000 |
| 556000              | 2796000 | 536000              | 2848600 | 514500              | 2835000 | 468000              | 2860000 |
| 553000              | 2796500 | 535000              | 2848600 | 514500              | 2834000 | 467000              | 2860000 |
| 548000              | 2796500 | 534000              | 2848600 | 514500              | 2833000 | 466000              | 2860000 |
| 542700              | 2796500 | 533000              | 2848600 | 514500              | 2832500 | 465000              | 2860000 |
| 542700              | 2800000 | 532000              | 2848600 | 510000              | 2832500 | 464000              | 2860000 |
| 542700              | 2805000 | 531000              | 2848600 | 509000              | 2832500 | 463000              | 2860000 |
| 542700              | 2810000 | 530000              | 2848600 | 508000              | 2832500 | 462000              | 2860000 |
| 542000              | 2811000 | 529000              | 2848600 | 507000              | 2832500 | 461000              | 2860000 |
| 541300              | 2814000 | 528000              | 2848600 | 506000              | 2832500 | 460000              | 2860000 |
| 542700              | 2816000 | 527000              | 2848600 | 505000              | 2832500 | 459500              | 2863200 |
| 544100              | 2820000 | 526000              | 2848600 | 504000              | 2832500 | 459000              | 2863200 |
| 543500              | 2824600 | 525000              | 2848600 | 503000              | 2832500 | 458000              | 2863200 |
| 545000              | 2829000 | 524000              | 2848600 | 502000              | 2832500 | 457000              | 2863200 |
| 545700              | 2832200 | 523000              | 2848600 | 501000              | 2832500 | 456000              | 2863200 |
| 546200              | 2835700 | 522000              | 2848600 | 500000              | 2832500 | 455000              | 2863200 |
| 548600              | 2837500 | 521000              | 2848600 | 499000              | 2832500 | 454000              | 2863200 |
| 550300              | 2839000 | 520000              | 2848600 | 498000              | 2832500 |                     |         |
| 545000              | 2839000 | 519000              | 2848600 | 497000              | 2832500 |                     |         |
| 540000              | 2839000 | 518000              | 2848600 | 496000              | 2832500 |                     |         |
| 550500              | 2844000 | 517000              | 2848600 | 495000              | 2832500 |                     |         |
| 545000              | 2844000 | 516000              | 2848600 | 495000              | 2833000 |                     |         |
| 540000              | 2844000 | 515000              | 2848600 | 495000              | 2834000 |                     |         |
| 550300              | 2848600 | 514500              | 2848600 | 495000              | 2835000 |                     |         |
| 549000              | 2848600 | 514500              | 2848000 | 495000              | 2836000 |                     |         |
| 548000              | 2848600 | 514500              | 2847600 | 494500              | 2837000 |                     |         |
| 547000              | 2848600 | 514500              | 2846600 | 491500              | 2841000 |                     |         |
| 546000              | 2848600 | 514500              | 2845000 | 488500              | 2845500 |                     |         |
| 545000              | 2848600 | 514500              | 2844000 | 483000              | 2848500 |                     |         |
| 544000              | 2848600 | 514500              | 2843000 | 480000              | 2852500 |                     |         |
| 543000              | 2848600 | 514500              | 2842000 | 475000              | 2854000 |                     |         |
| 542000              | 2848600 | 514500              | 2841000 | 473500              | 2857000 |                     |         |
| 541000              | 2848600 | 514500              | 2840000 | 473000              | 2860000 |                     |         |
| 540000              | 2848600 | 514500              | 2839000 | 472000              | 2860000 |                     |         |
| 539000              | 2848600 | 514500              | 2838000 | 471000              | 2860000 |                     |         |

Note: m = meter

Okeelanta Power L.P.'s coordinates are 524900 m E, 2940100 m N.

Table 4-1. OkPLP Building Dimensions Used in the Modeling Analysis

| Structure                                 | Height |       | Length |       | Width |       |
|---|--------|-------|--------|-------|-------|-------|
|   | ft     | m     | ft     | m     | ft    | m     |
| Boiler Building                           | 139    | 42.44 | 207    | 63.12 | 114   | 34.84 |
| Electrostatic Precipitator Building No. 1 | 107    | 32.54 | 50     | 15.24 | 71    | 21.76 |
| Electrostatic Precipitator Building No. 2 | 107    | 32.54 | 50     | 15.24 | 71    | 21.76 |
| Electrostatic Precipitator Building No. 3 | 107    | 32.54 | 50     | 15.24 | 71    | 21.76 |



Table 5-1. Summary of Continuous Sulfur Dioxide Ambient Monitoring Data Collected Near South Bay

| County     | Station ID   | Monitor Location               | Year | Number of Observations | Concentration $\mu\text{g}/\text{m}^3$ |                   |                   |                   | Annual Average   |
|------------|--------------|--------------------------------|------|------------------------|--|-------------------|-------------------|-------------------|------------------|
|            |              |                                |      |                        | Maximum 3-hour                         | 2nd High 3-hour   | Maximum 24-hour   | 2nd High 24-hour  |                  |
| Palm Beach | 4150-001-J02 | South Bay-300 North US 27      | 1997 | 8,486                  | 55                                     | 47                | 19                | 13                | 5                |
| Palm Beach | 3840-004-G02 | Riviera Beach-1050 15th Street | 1997 | 8,274                  | 165                                    | 154               | 50                | 37                | 4                |
| Palm Beach | 12-099-3004  | Riviera Beach-1050 15th Street | 1998 | 8,299                  | 177<br>(0.068 ppm)                     | 31<br>(0.012 ppm) | 24<br>(0.009 ppm) | 10<br>(0.004 ppm) | 3<br>(0.001 ppm) |
|            |              |                                | 1999 | 8,221                  | 45<br>(0.017 ppm)                      | 37<br>(0.014 ppm) | 34<br>(0.013 ppm) | 34<br>(0.013 ppm) | 5<br>(0.002 ppm) |
|            |              |                                | 2000 | 8,404                  | 34<br>(0.013 ppm)                      | 31<br>(0.012 ppm) | 26<br>(0.010 ppm) | 21<br>(0.008 ppm) | 5<br>(0.002 ppm) |

Note:  $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter  
 ppm = parts per million

Table 6-1. Maximum Predicted SO<sub>2</sub> Impacts Due to the Proposed Project Only  
 Okeelanta Power, L.P.

| Pollutant/<br>Averaging Time | Concentration <sup>a</sup><br>(µg/m <sup>3</sup> ) | Receptor Location <sup>b</sup> |          | Time Period<br>(YYMMDDHH) | EPA   |
|------------------------------|--|--------------------------------|----------|---------------------------|---|
|                              |  | Direction                      | Distance |                           | Significant<br>Impact Level<br>(µg/m <sup>3</sup> ) |
|                              |  | (degrees)                      | (m)      |                           |   |
| Annual                       | 0.1  | 311.7                          | 5,703    | 87123124                  | 1   |
|                              | 0.1  | 155.5                          | 3,121    | 88123124                  |   |
|                              | 0.2  | 316.8                          | 5,201    | 89123124                  |   |
|                              | 0.1  | 314.5                          | 5,410    | 90123124                  |   |
|                              | 0.1  | 309.7                          | 5,930    | 91123124                  |   |
| Highest 24-Hour              | 6.1  | 229.3                          | 4,356    | 87110724                  | 5   |
|                              | 6.0  | 337.6                          | 4,100    | 88012024                  |   |
|                              | 5.8  | 316.8                          | 5,201    | 89031524                  |   |
|                              | 5.8  | 324.0                          | 4,690    | 90101024                  |   |
|                              | 5.7  | 341.6                          | 3,995    | 91030224                  |   |
| Highest 3-Hour               | 11.5   | 216.5                          | 3,534    | 87053018                  | 25  |
|                              | 11.4   | 158.9                          | 3,043    | 88102603                  |   |
|                              | 11.2   | 157.2                          | 3,081    | 89120312                  |   |
|                              | 11.4   | 170.1                          | 2,882    | 90011315                  |   |
|                              | 10.2   | 168.1                          | 2,901    | 91110424                  |   |

<sup>a</sup> Based on 5-year meteorological record, West Palm Beach, 1987 to 1991.

<sup>b</sup> Relative to OkPLP Boiler B stack.

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

Table 6-2. Summary of Maximum Pollutant Concentrations Predicted for the Project Only  
 Compared to the EPA Class I Significant Impact Levels and PSD Class I Increments

| Pollutant       | Averaging Time | Maximum Concentration <sup>a</sup><br>( $\mu\text{g}/\text{m}^3$ ) | EPA Class I Significant Impact Levels<br>( $\mu\text{g}/\text{m}^3$ ) | PSD Class I Increments<br>( $\mu\text{g}/\text{m}^3$ ) |
|-----------------|----------------|--|---|--|
| SO <sub>2</sub> | Annual         | 0.002  | 0.1   | 2  |
|                 | 24-Hour        | 0.29   | 0.2   | 5  |
|                 | 3-Hour         | 0.38   | 1.0   | 25   |

<sup>a</sup> Highest concentration predicted with CALPUFF model and CALMET South Florida Domain, 1990.

Table 6-3. Maximum Predicted SO<sub>2</sub> Impacts For All Sources,  
 AAQS Screening Analysis, Okeelanta Power, L.P.

| Pollutant/<br>Averaging Time | Concentration <sup>a</sup><br>(µg/m <sup>3</sup> ) | Receptor Location <sup>b</sup> |                 | Time Period<br>(YYMMDDHH) |
|------------------------------|--|--------------------------------|-----------------|---------------------------|
|                              |  | Direction<br>(degrees)         | Distance<br>(m) |                           |
| Annual                       | 10.1   | 302.0                          | 7,148           | 87123124                  |
|                              | 10.3   | 294.1                          | 9,270           | 88123124                  |
|                              | 10.7   | 297.9                          | 8,102           | 89123124                  |
|                              | 10.4   | 300.0                          | 7,577           | 90123124                  |
|                              | 10.4   | 293.9                          | 9,362           | 91123124                  |
| HSH 24-Hour                  | 51.7   | 312.4                          | 5,628           | 87041424                  |
|                              | 61.2   | 160.0                          | 8,000           | 88112024                  |
|                              | 50.8   | 100.0                          | 8,000           | 89060424                  |
|                              | 43.9   | 311.7                          | 5,703           | 90031624                  |
|                              | 52.2   | 180.0                          | 8,000           | 91051724                  |
| HSH 3-Hour                   | 185.7  | 150.0                          | 8,000           | 87110921                  |
|                              | 174.6  | 312.4                          | 5,628           | 88071621                  |
|                              | 177.0  | 120.0                          | 6,000           | 89020624                  |
|                              | 186.3  | 180.0                          | 8,000           | 90090721                  |
|                              | 200.7  | 130.0                          | 7,000           | 91032124                  |

<sup>a</sup> Based on 5-year meteorological record, West Palm Beach, 1987 to 1991.

<sup>b</sup> Relative to OkPLP Boiler B stack.

Note: YYMMDDHH = Year, Month, Day, Hour Ending  
 HSH = Highest, Second-Highest

Table 6-4. Maximum Predicted SO<sub>2</sub> Concentrations for All Sources Compared to the AAQS - Refined Analysis

| Pollutant/<br>Averaging Time | Concentration (µg/m <sup>3</sup> ) <sup>a</sup> |                    |            | Receptor Location <sup>b</sup> |                 | Time Period<br>(YYMMDDHH) | Florida<br>AAQS<br>(µg/m <sup>3</sup> ) |
|------------------------------|---|--------------------|------------|--------------------------------|-----------------|---------------------------|---|
|                              | Total   | Modeled<br>Sources | Background | Direction<br>(degree)          | Distance<br>(m) |                           |   |
|                              |   |                    |            |                                |                 |                           |   |
| Annual                       | 15.1  | 10.1               | 5          | 302                            | 7,148           | 87123124                  | 60                                      |
|                              | 15.3  | 10.3               | 5          | 294                            | 9,270           | 88123124                  |   |
|                              | 15.7  | 10.7               | 5          | 298                            | 8,102           | 89123124                  |   |
|                              | 15.4  | 10.4               | 5          | 300                            | 7,577           | 90123124                  |   |
|                              | 15.4  | 10.4               | 5          | 294                            | 9,362           | 91123124                  |   |
| HSH 24-Hour                  | 74.2  | 61.2               | 13         | 160                            | 8,000           | 88112024                  | 260                                     |
| HSH 3-Hour                   | 232.7   | 185.7              | 47         | 151                            | 8,000           | 87110921                  | 1,300                                   |
|                              | 233.4   | 186.4              | 47         | 178                            | 8,000           | 90090721                  |   |
|                              | 248.6   | 201.6              | 47         | 128                            | 7,000           | 91032124                  |   |

<sup>a</sup> Based on 5-year meteorological record, West Palm Beach, 1987 to 1991.

<sup>b</sup> Relative to OkPLP Boiler B stack.

Note: YYMMDDHH = Year, Month, Day, Hour Ending  
 HSH = Highest, Second-Highest

Table 6-5. Maximum Predicted SO<sub>2</sub> Impacts For All Sources,  
 PSD Class II Screening Analysis, Okeelanta Power L.P.

| Pollutant/<br>Averaging Time | Concentration <sup>a</sup><br>(µg/m <sup>3</sup> ) | Receptor Location <sup>b</sup> |                  | Time Period<br>(YYMMDDHH) |
|------------------------------|--|--------------------------------|------------------|---------------------------|
|                              |  | Direction<br>(degree)          | Distance<br>(m)  |                           |
| Annual                       | <0.0   | All                            | All <sup>c</sup> | 87123124                  |
|                              | <0.0   | All                            | All <sup>c</sup> | 88123124                  |
|                              | <0.0   | All                            | All <sup>c</sup> | 89123124                  |
|                              | <0.0   | All                            | All <sup>c</sup> | 90123124                  |
|                              | <0.0   | All                            | All <sup>c</sup> | 91123124                  |
| HSH 24-Hour                  | 10.6   | 219                            | 3,656            | 87052824                  |
|                              | 10.4   | 237                            | 5,156            | 88061224                  |
|                              | 10.1   | 317                            | 5,201            | 89060424                  |
|                              | 9.8  | 225                            | 3,990            | 90061324                  |
|                              | 10.7   | 235                            | 4,908            | 91060924                  |
| HSH 3-Hour                   | 39.9   | 208                            | 3,213            | 87053003                  |
|                              | 46.0   | 292                            | 10,098           | 88071409                  |
|                              | 39.5   | 329                            | 4,414            | 89060521                  |
|                              | 43.9   | 285                            | 9,930            | 90080409                  |
|                              | 41.1   | 310                            | 8,000            | 91090209                  |

<sup>a</sup> Based on 5-year meteorological record, West Palm Beach, 1987 to 1991.

<sup>b</sup> Relative to OkPLP Boiler B stack.

<sup>c</sup> Maximum concentrations were predicted to be less than zero at all receptors.

Note: YYMMDDHH = Year, Month, Day, Hour Ending  
 HSH = Highest, Second-Highest

Table 6-6. Maximum Predicted SO<sub>2</sub> Concentrations for All Sources Compared to the PSD Class II Increment  
 Refined Analysis, Okeelanta Power L.P.

| Pollutant/<br>Averaging Time | Concentration <sup>a</sup><br>(µg/m <sup>3</sup> ) | Receptor Location <sup>b</sup> |                  | Time Period<br>(YYMMDDHH) | PSD<br>Increment<br>(µg/m <sup>3</sup> ) |
|------------------------------|--|--------------------------------|------------------|---------------------------|--|
|                              |  | Direction<br>(degree)          | Distance<br>(m)  |                           |  |
| Annual                       | <0.0   | All                            | All <sup>c</sup> | All years                 | 20                                       |
| HSH 24-Hour                  | 10.6   | 219                            | 3,656            | 87052824                  | 91                                       |
|                              | 10.4   | 237                            | 5,156            | 88061224                  |  |
|                              | 10.1   | 317                            | 5,201            | 89060424                  |  |
|                              | 9.8  | 225                            | 3,990            | 90061324                  |  |
|                              | 10.7   | 235                            | 4,908            | 91060924                  |  |
| HSH 3-Hour                   | 46.0   | 292                            | 10,098           | 88071409                  | 512                                      |
|                              | 43.9   | 285                            | 9,930            | 90080409                  |  |

<sup>a</sup> Based on 5-year meteorological record, West Palm Beach, 1987 to 1991.

<sup>b</sup> Relative to OkPLP Boiler B stack.

<sup>c</sup> Maximum concentrations were predicted to be less than zero for all receptors.

Note: YYMMDDHH = Year, Month, Day, Hour Ending  
 HSH = Highest, Second-Highest

Table 6-7. Summary of Maximum 24-Hour Average SO<sub>2</sub> Concentrations Predicted for PSD Sources at the Everglades National Park Compared to the Allowable PSD Class I Increments

| Averaging Time | Maximum Concentration <sup>a</sup> (µg/m <sup>3</sup> ) | Receptor Location (m) |           | Period Ending (Julian day/hour/year) | Allowable PSD Class I Increments (µg/m <sup>3</sup> ) |
|----------------|---|-----------------------|-----------|--------------------------------------|---|
|                |   | UTM East              | UTM North |                                      |   |
| 24-Hour        | 3.47  | 54500                 | 2848600   | 307/23/90                            | 5   |

<sup>a</sup>Concentrations are second-highest predicted with CALPUFF model and CALMET South Florida Domain, 1990.

Note: m = meter

UTM = Universal Transverse Mercator

µg/m<sup>3</sup> = micrograms per cubic meter



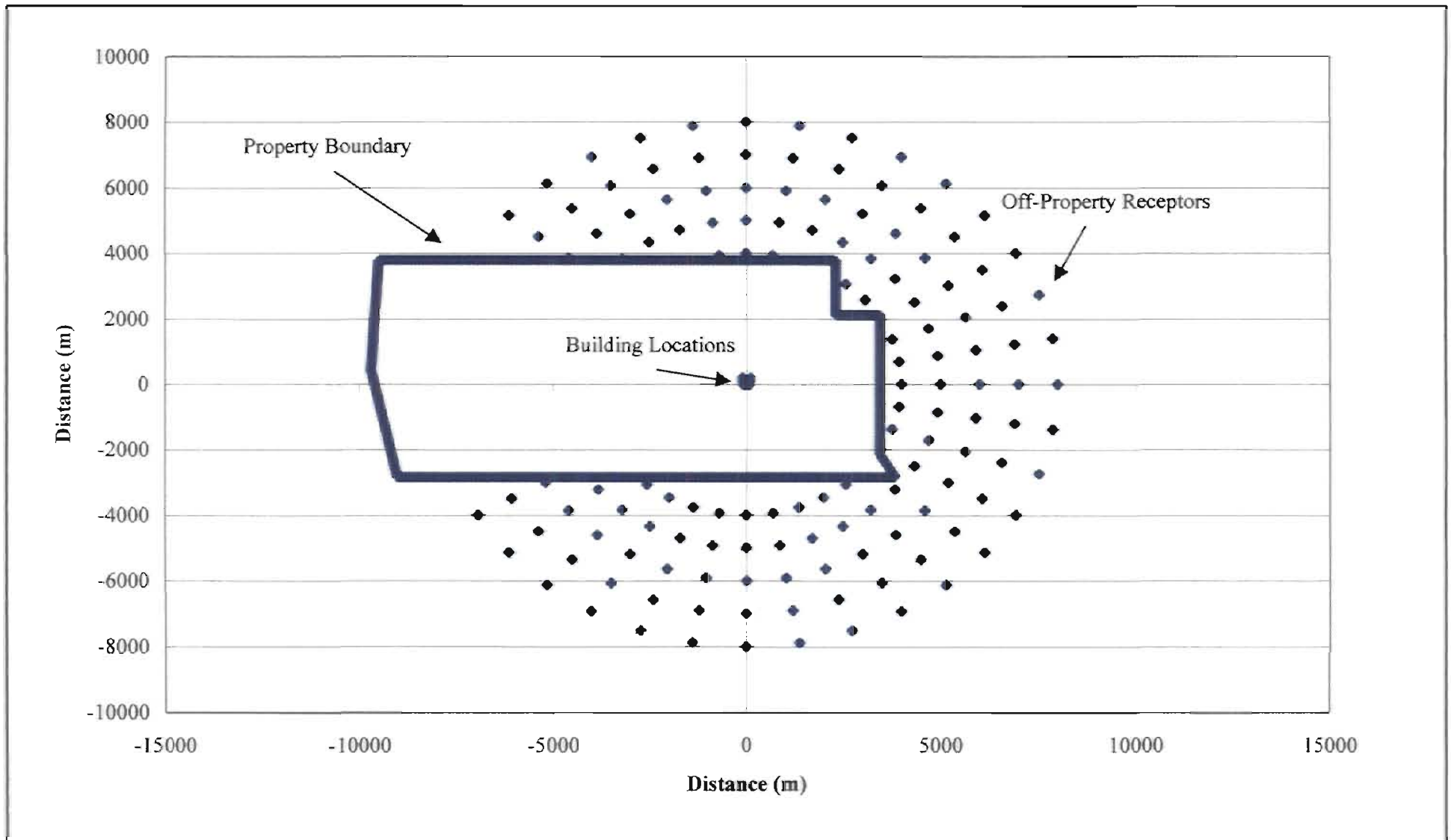


Figure 3-1. Okeelanta Power, L.P.  
Building, Property Boundary, and Receptor Locations

Source: Golder, 2001.



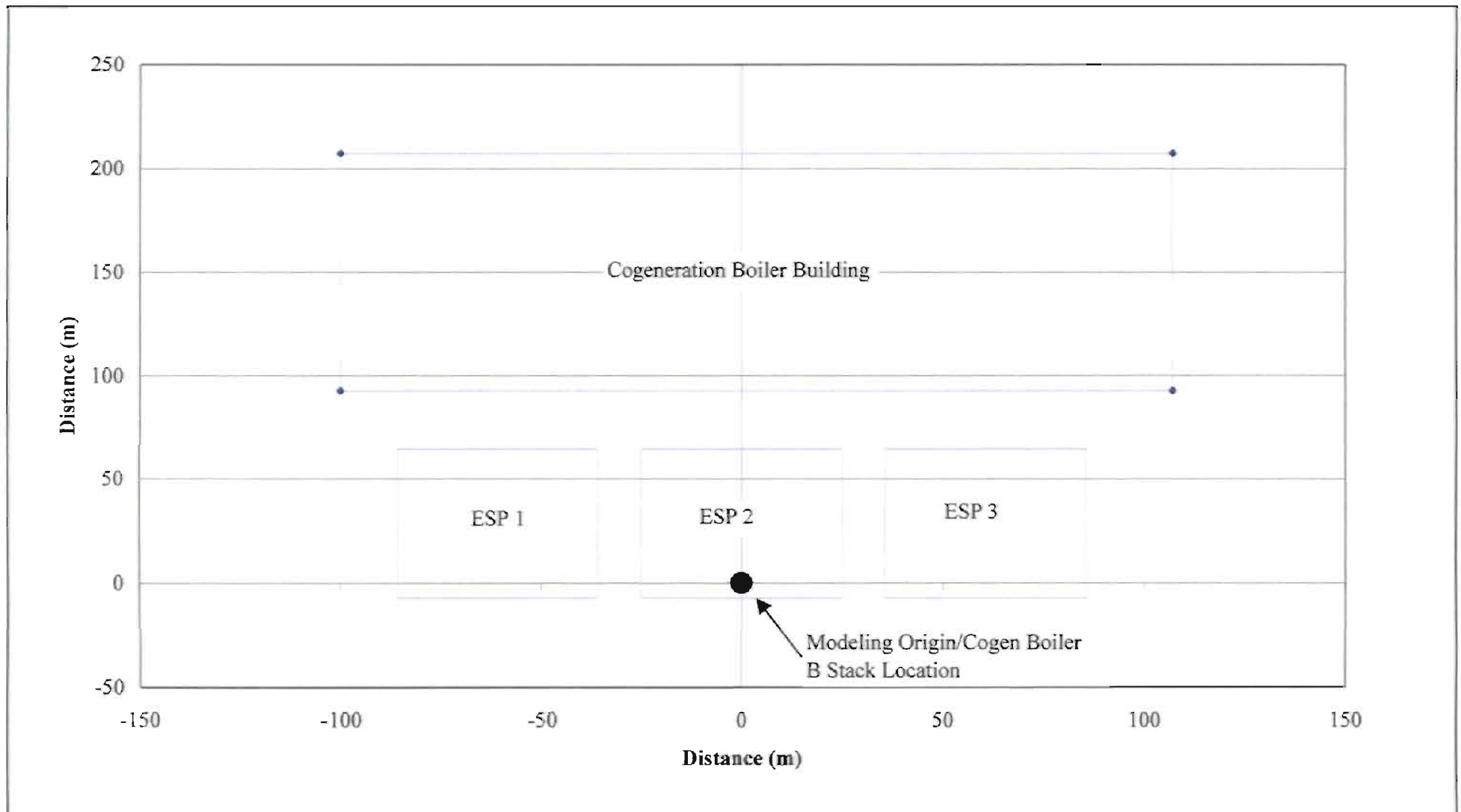


Figure 4-1. Building and Modeling Origin Locations Used in the Modeling Analysis  
Okeelanta Power L.P.

Source: Golder, 2001.



**APPENDIX A**

**CALPUFF MODEL DESCRIPTION AND METHODOLOGY**

## A.0 CALPUFF MODEL DESCRIPTION AND METHODOLOGY

### A.1 INTRODUCTION

As part of the new source review requirements under Prevention of Significant Deterioration (PSD) regulations, new sources are required to address air quality impacts at PSD Class I areas. As part of the PSD analysis report submitted to the Florida Department of Environmental Protection (DEP), the air quality impacts due to the potential emissions of the proposed Cargill Riverview modification are required to be addressed at the PSD Class I area of the Everglades National Park (ENP). The ENP is located approximately 92.3 km south of the facility site and is the nearest Class I area to the facility.

The evaluation of air quality impacts are not only concerned with determining compliance with PSD Class I increments but also assessing a source's impact on Air Quality Related Values (AQRVs), such as regional haze. Further, compliance with PSD Class I increments can be evaluated by determining if the source's impacts are less than the proposed U.S. Environmental Protection Agency (EPA) Class I significant impact levels. The significant impact levels are threshold levels that are used to determine the type of air impact analyses needed for the facility. If the new source's impacts are predicted to be less than significant, then the source's impacts are assumed not to have a significant adverse affect on air quality and additional modeling with other sources is not required. However, if the source's impacts are predicted to be greater than the significant impact levels, additional modeling with other sources is required to demonstrate compliance with Class I increments.

Currently there are several air quality modeling approaches recommended by the Interagency Workgroup on Air Quality Models (IWAQM) to perform these analyses. The IWAQM consists of EPA and Federal Land Managers (FLM) of Class I areas who are responsible for ensuring that AQRVs are not adversely impacted by new and existing sources. These recommendations have been summarized in two documents:

- *Interagency Workgroup on Air Quality Models (IWAQM), Phase 2 Summary Report and Recommendations for Modeling Long Range Transport Impacts* (EPA, 1998), referred to as the IWAQM Phase 2 report.
- *Federal Land Managers' Air Quality Related Values Workgroup (FLAG), Phase I Report*, USFS, NPS, USFWS (12/00), referred to as the FLAG document.

For the Proposed Project, air quality analyses were performed that assess the facility's impacts in the PSD Class I area of the ENP using the refined modeling approach from the IWAQM Phase 2 report for:

- Significant impact analysis,

- SO<sub>2</sub> PSD Class I increment analysis, and
- Regional haze analysis.

The refined analysis approach was used instead of the screening analysis approach since the air quality impacts are based on generally more realistic assumptions, include more detailed meteorological data, and are estimated at locations at the Class I area.

## **A.2 GENERAL AIR MODELING APPROACH**

The general modeling approach was based on using the long-range transport model, California Puff model (CALPUFF, Version 5.4). At distances beyond 50 km, the ISCST3 model is considered to over-predict air quality impacts, because it is a steady-state model. At those distances, the CALPUFF model is recommended for use. Recently, the FLM have requested that air quality impacts, such as for regional haze, for a source located more than 50 km from a Class I area be predicted using the CALPUFF model. The Florida DEP has also recommended that the CALPUFF model be used to assess if the source has a significant impact at a Class I area located beyond 50 km from the source. As a result, a significant impact and regional haze analyses were performed using the CALPUFF model to assess the facility's impacts at the ENP.

The methods and assumptions used in the CALPUFF model were based on the latest recommendations for a refined analysis as presented in the IWAQM Phase 2 Summary Report and the FLAG documents.

A regional haze analysis was performed to determine the affect that the facility's emissions will have on background regional haze levels at the ENP. In the regional haze analysis, the change in visual range, as calculated by a deciview change, was estimated for the facility in accordance with the IWAQM recommendations. Based on those recommendations, the CALPUFF model is used to predict the maximum 24-hour average sulfate (SO<sub>4</sub>), nitrate (NO<sub>3</sub>), and fine particulate (PM<sub>10</sub>) concentrations as well as ammonium sulfate [(NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub>] and ammonium nitrate (NH<sub>4</sub>NO<sub>3</sub>) concentrations. The change in visibility due to a source, estimated as a percentage, is then calculated based on the change from background data.

The following sections present the methods and assumptions used to assess the refined significant impact and regional haze analyses performed for the proposed project. The results of these analyses are presented in Section 1.0.

### **A.3 MODEL SELECTION AND SETTINGS**

The California Puff (CALPUFF, version 5.4) air modeling system was used to model to assess the Proposed Project's impacts at the PSD Class I area for comparison to the PSD Class I significant impact levels and to the regional haze visibility criteria. CALPUFF is a non-steady state Lagrangian Gaussian puff long-range transport model that includes algorithms for building downwash effects as well as chemical transformations (important for visibility controlling pollutants), and wet/dry deposition. The CALPUFF meteorological and geophysical data preprocessor (CALMET, Version 5.2), a preprocessor to CALPUFF, is a diagnostic meteorological model that produces a three-dimensional field of wind and temperature and a two-dimensional field of other meteorological parameters. CALMET was designed to process raw meteorological, terrain and land-use databases to be used in the air modeling analysis. The CALPUFF modeling system uses a number of FORTRAN preprocessor programs that extract data from large databases and converts the data into formats suitable for input to CALMET. The processed data produced from CALMET was input to CALPUFF to assess the pollutant specific impact. Both CALMET and CALPUFF were used in a manner that is recommended by the IWAQM Phase 2 and FLAG reports.

#### **A.3.1 CALPUFF MODEL APPROACHES AND SETTINGS**

The IWAQM has recommended approaches for performing a Phase 2 refined modeling analyses that are presented in Table A-1. These approaches involve use of meteorological data, selection of receptors and dispersion conditions, and processing of model output.

The specific settings used in the CALPUFF model are presented in Table A-2.

#### **A.3.2 EMISSION INVENTORY AND BUILDING WAKE EFFECTS**

The CALPUFF model included the facility's emission, stack, and operating data as well as building dimensions to account for the effects of building-induced downwash on the emission sources. Dimensions for all significant building structures were processed with the Building Profile Input Program (BPIP), Version 95086, and were included in the CALPUFF model input. Section 2.0 presents a listing of the facility's emissions and structures included in the analysis.

### **A.4 RECEPTOR LOCATIONS**

For the refined analyses, pollutant concentrations were predicted in an array of 126 discrete receptors located at the ENP area. These receptors are the same as those used in the PSD Class I analysis performed. These receptors were presented in Section 3.0, Table 3-2.

## **A.5 METEOROLOGICAL DATA**

### **A.5.1 REFINED ANALYSIS**

CALMET was used to develop the gridded parameter fields required for the refined modeling analyses. The follow sections discuss the specific data used and processed in the CALMET model.

### **A.5.2 CALMET SETTINGS**

The CALMET settings contained in Table A-3 were used for the refined modeling analysis. With the exception of hourly precipitation data files, all input data files needed for CALMET were developed by the FDEP staff.

### **A.5.3 MODELING DOMAIN**

A rectangular modeling domain extending 450 km in the east-west (x) direction and 470 km in the north-south (y) direction was used for the refined modeling analysis. The southwest corner of the domain is the origin and is located at 23.8 degrees north latitude and 83.5 degrees west longitude. This location is in the Gulf of Mexico approximately 110 km west of Venice, Florida. For the processing of meteorological and geophysical data, the domain contains 90 grid cells in the x-direction and 94 grid cells in the y-direction. The domain grid resolution is 5 km. The air modeling analysis was performed in the UTM coordinate system.

### **A.5.4 MESOSCALE MODEL – GENERATION 4 (MM4) DATA**

Pennsylvania State University in conjunction with the NCAR Assessment Laboratory developed the MM4 data set, a prognostic wind field or "guess" field, for the United States. The hourly meteorological variables used to create this data set (wind, temperature, dew point depression, and geopotential height for eight standard levels and up to 15 significant levels) are extensive and only allow for one data base set for the year 1990. The analysis used the MM4 data to initialize the CALMET wind field. The MM4 data have a horizontal spacing of 80 km and are used to simulate atmospheric variables within the modeling domain.

The MM4 subset domain was provided by FDEP and consisted of a 7 x 7- cell rectangle, with 80 km grid resolution, extending from the MM4 grid points (50,6) to (57,13). These data were processed to create a MM4.DAT file, for input to the CALMET model.

The MM4 data set used in the CALMET, although advanced, lacks the fine detail of specific temporal and spatial meteorological variables and geophysical data. These variables were processed into the appropriate format and introduced into the CALMET model through the additional data files obtained from the following sources.

#### **A.5.5 SURFACE DATA STATIONS AND PROCESSING**

The surface station data processed for the CALPUFF analyses consisted of data from eight NWS stations or Federal Aviation Administration (FAA) Flight Service stations for Orlando, Fort Myers, Daytona Beach, Vero Beach, Key West, Miami, Tampa, and West Palm Beach. A summary of the surface station information and locations are presented in Table A-4. The surface station parameters include wind speed, wind direction, cloud ceiling height, opaque cloud cover, dry bulb temperature, relative humidity, station pressure, and a precipitation code that is based on current weather conditions. The surface station data were processed by FDEP into a SURF.DAT file format for CALMET input.

Because the modeling domain extends largely over water, C-Man station data from Venice, Sombrero Key, and Lake Worth was obtained. These data were processed by Florida DEP into an over-water surface station format (i.e., SEA\*.DAT) for input to CALMET. The over-water station data include wind direction, wind speed and air temperature.

#### **A.5.6 UPPER AIR DATA STATIONS AND PROCESSING**

The analysis included three upper air NWS stations located in Ruskin, Key West, and West Palm Beach. Data for each station were obtained from the Florida DEP in a format for CALMET input.

The data and locations for the upper air stations are presented in Table A-4.

#### **A.5.7 PRECIPITATION DATA STATIONS AND PROCESSING**

Precipitation data were processed from a network of hourly precipitation data files collected from primary and secondary NWS precipitation-recording stations located within the latitude and longitudinal limits of the modeling domain. Data for 23 stations were obtained in NCDC TD-3240 variable format and converted into a fixed-length format. The utility programs PEXTRACT and PMERGE were then used to process the data into the format for the PRECIP.DAT file that is used by CALMET. A listing of the precipitation stations used for the modeling analysis is presented in Table A-5.



### **A.5.8 GEOPHYSICAL DATA PROCESSING**

The land-use and terrain information data were developed by the FDEP for the modeling domain and were provided in a GEO.DAT file format for input to CALMET. Terrain elevations for each grid cell of the modeling domain were obtained from Digital Elevation Model (DEM) files obtained from US Geographical Survey (USGS). The DEM data was extracted for the modeling domain grid using the utility extraction program LCELEV. Land-use data were obtained from the USGS GIS.DAT which is based on the ARM3 data. The resolution of the GIS.DAT file is one-eighth of a degree in the east-west direction and one-twelfth of a degree in the north-south direction. Land-use values for the domain grid were obtained with the utility program CAL-LAND. Other parameters processed for the modeling domain by CAL-LAND include surface roughness, surface Albedo, Bowen ratio, soil heat flux, and leaf index field. The land-use parameter values were based on annual averaged values.

Table A-1. Refined Modeling Analyses Recommendations<sup>a</sup>

| Model<br>Input/Output | Description   |
|-----------------------|---|
| Meteorology           | Use CALMET (minimum 6 to 10 layers in the vertical; top layer must extend above the maximum mixing depth expected); horizontal domain extends 50 to 80 km beyond outer receptors and sources being modeled; terrain elevation and land-use data is resolved for the situation.  |
| Receptors             | Within Class I area(s) of concern; obtain regulatory concurrence on coverage.   |
| Dispersion            | <ol style="list-style-type: none"> <li>1. CALPUFF with default dispersion settings.</li> <li>2. Use MESOPUFF II chemistry with wet and dry deposition.</li> <li>3. Define background values for ozone and ammonia for area.</li> </ol>  |
| Processing            | <ol style="list-style-type: none"> <li>1. For PSD increments: use highest, second highest 3-hour and 24-hour average SO<sub>2</sub> concentrations; highest, second highest 24-hour average PM<sub>10</sub> concentrations; and highest annual average SO<sub>2</sub>, PM<sub>10</sub> and NO<sub>x</sub> concentrations.</li> <li>2. For haze: process, on a 24-hour basis, compute the source extinction from the maximum increase in emissions of SO<sub>2</sub>, NO<sub>x</sub> and PM<sub>10</sub>; compute the daily relative humidity factor [f(RH)], provided from an external disk file; and compute the maximum percent change in extinction using the FLM supplied background extinction data in the FLAG document.</li> <li>3. For significant impact analysis: use highest annual and highest short-term averaging time concentrations for SO<sub>2</sub>, PM<sub>10</sub>, and NO<sub>x</sub>.</li> </ol> |

Note:

<sup>a</sup> IWAQM Phase II report (12/98) and FLAG document (12/00)

Table A-2. CALPUFF Model Settings

| Parameter                      | Setting   |
|--------------------------------|---|
| Pollutant Species              | SO <sub>2</sub> , SO <sub>4</sub> , NO <sub>x</sub> , HNO <sub>3</sub> , and NO <sub>3</sub> , PM <sub>10</sub> , and FL  |
| Chemical Transformation        | MESOPUFF II scheme, hourly ozone data   |
| Deposition                     | Include both dry and wet deposition, plume depletion  |
| Meteorological/Land Use Input  | CALMET  |
| Plume Rise                     | Transitional, Stack-tip downwash, Partial plume penetration   |
| Dispersion                     | Puff plume element, PG/MP coefficients, rural mode, ISC building downwash scheme  |
| Terrain Effects                | Partial plume path adjustment   |
| Output                         | Create binary concentration file including output species for SO <sub>4</sub> , NO <sub>3</sub> , PM <sub>10</sub> , SO <sub>2</sub> , NO <sub>x</sub> , FL, CO, and Be   |
| Model Processing               | For haze: highest predicted 24-hour extinction change (%) for the year<br><br>For significant impact analysis: highest predicted annual and highest short-term averaging time concentrations for SO <sub>2</sub> , NO <sub>x</sub> , and PM <sub>10</sub> |
| Background Values <sup>a</sup> | Ozone: 80 ppb; Ammonia: 10 ppb  |

## Note:

<sup>a</sup> Recommended values by the Florida DEP.

Table A-3. CALMET Settings

| Parameter                   | Setting  |
|-----------------------------|--|
| Horizontal Grid Dimensions  | 450 by 470 km, 5 km grid resolution  |
| Vertical Grid               | 9 layers   |
| Weather Station Data Inputs | 8 surface, 3 upper air, 23 precipitation stations                          |
| Wind model options          | Diagnostic wind model, no kinematic effects                                |
| Prognostic wind field model | MM4 data, 80 km resolution, 7 x 7 grid, used for wind field initialization |
| Output                      | Binary hourly gridded meteorological data file for CALPUFF input           |

Table A-4. Surface and Upper Air Stations Used in the CALPUFF Analysis

| Station Name              | Station Symbol | WBAN Number | UTM Coordinates |               |      | Anemometer Height (m) |
|---------------------------|----------------|-------------|-----------------|---------------|------|-----------------------|
|                           |                |             | Easting (km)    | Northing (km) | Zone |                       |
| <u>Surface Stations</u>   |                |             |                 |               |      |                       |
| Tampa                     | TPA            | 12842       | 349.20          | 3094.25       | 17   | 6.7                   |
| Daytona Beach             | DAB            | 12834       | 495.14          | 3228.05       | 17   | 9.1                   |
| Orlando                   | ORL            | 12815       | 468.96          | 3146.88       | 17   | 10.1                  |
| Vero Beach                | VER            | 12843       | 557.52          | 3058.36       | 17   | 6.7                   |
| Fort Myers                | FMY            | 12835       | 413.65          | 2940.38       | 17   | 6.1                   |
| Miami                     | MIA            | 12839       | 566.82          | 2857.20       | 17   | 7.0                   |
| Key West                  | EYW            | 12836       | 424.03          | 2715.14       | 17   | 18.3                  |
| West Palm Beach           | PBI            | 12844       | 587.87          | 2951.43       | 17   | 10.1                  |
| <u>Upper Air Stations</u> |                |             |                 |               |      |                       |
| Ruskin                    | TBW            | 12842       | 349.20          | 3094.28       | 17   | NA                    |
| West Palm Beach           | PBI            | 12844       | 587.87          | 2951.42       | 17   | NA                    |
| Key West                  | EYW            | 12836       | 424.03          | 2715.14       | 17   | NA                    |

Table A-5. Hourly Precipitation Stations Used in the CALPUFF Analysis

| Station Name            | Station Number | UTM Coordinate  |                  |      |
|-------------------------|----------------|-----------------|------------------|------|
|                         |                | Easting<br>(km) | Northing<br>(km) | Zone |
| Belle Glade HRCN GT 4   | 80616          | 528.19          | 2953.03          | 17   |
| Boca Raton              | 80845          | 588.75          | 2916.52          | 17   |
| Canal Point Gate 5      | 81271          | 536.43          | 2971.51          | 17   |
| Clewiston US Engineers  | 81654          | 546.19          | 2912.73          | 17   |
| Fort Myers FAA/AP       | 83186          | 413.99          | 2940.71          | 17   |
| Homestead Exp Stn       | 84091          | 550.26          | 2820.21          | 17   |
| Key West Intl AP        | 84570          | 423.67          | 2715.51          | 17   |
| Miami WSCMO Airport     | 85663          | 570.20          | 2856.17          | 17   |
| Moore Haven Lock 1      | 85895          | 491.61          | 2967.80          | 17   |
| North New River Canal # | 86323          | 546.58          | 2912.48          | 17   |
| Ortona Lock 2           | 86657          | 470.17          | 2962.27          | 17   |
| Parrish                 | 86880          | 366.99          | 3054.39          | 17   |
| Pennsuco 5 WNW          | 86988          | 554.70          | 2867.81          | 17   |
| Port Mayaca S 1 Canal   | 87293          | 538.04          | 2984.44          | 17   |
| St Lucie New Lock 1     | 87859          | 571.04          | 2999.35          | 17   |
| St Petersburg           | 87886          | 339.61          | 3071.99          | 17   |
| Tamiami Trail 40 Mi BEN | 88780          | 517.64          | 2849.04          | 17   |
| Tampa WSCMO AP          | 88788          | 348.48          | 3093.67          | 17   |
| Trail Glade Ranges      | 89010          | 551.57          | 2849.99          | 17   |
| Venice                  | 89176          | 357.59          | 2998.18          | 17   |
| Venus                   | 89184          | 467.27          | 3001.22          | 17   |
| Vero Beach 4 W          | 89219          | 554.27          | 3056.50          | 17   |
| West Palm Beach Int AP  | 89525          | 589.61          | 2951.63          | 17   |

**Golder Associates Inc.**

6241 NW 23rd Street, Suite 500  
Gainesville, FL 32653-1500  
Telephone (352) 336-5600  
Fax (352) 336-6603



November 2, 2001

0037584

Florida Department of Environmental Protection  
Bureau of Air Regulation  
2600 Blair Stone Road  
Tallahassee, FL 32399-2400

**RECEIVED**

**NOV 05 2001**

Attention: Mr. Jeff Koerner, P.E.

**BUREAU OF AIR REGULATION**

RE: OKEELANTA POWER COGENERATION FACILITY  
ARMS FACILITY ID NO. 0990332  
PROJECT NO. 0990332-014-AC/PSD-FL-196M  
APPLICATION TO MODIFY CO AND SO<sub>2</sub> EMISSIONS STANDARDS  
ADDITIONAL INFORMATION NO. 2

Dear Mr. Koerner:

Okeelanta Power Limited Partnership (OkPLP) has received the Department's request to provide a best available control technology (BACT) analysis for CO, SO<sub>2</sub>, and fluoride emissions for the three cogeneration boilers. Note that in the original application submitted by OkPLP for this change in December 2000, the applicant concluded that PSD review applied for CO, SO<sub>2</sub>, fluorides and sulfuric acid mist. As such, a brief BACT analysis was provided in Section 3.0 of said report. During the course of the Department's review of the application, several information requests were received that related to control technology and modeling of emissions. Therefore, it was presumed that the Department had received adequate information on which to base a BACT determination.

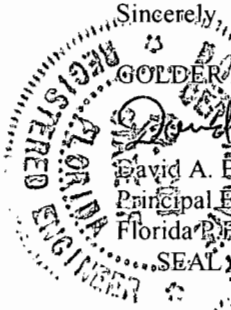
Nevertheless, OkPLP is providing an additional analysis of BACT for CO, SO<sub>2</sub> and fluoride emissions. This analysis is attached. As part of this analysis, OkPLP is proposing a lower 12-month rolling average SO<sub>2</sub> limit of 0.07 lb/MMBtu, or 402.5 TPY for all three boilers combined. This is lower than the previously requested annual limit of 0.10 lb/MMBtu and 575 TPY. Also attached are revised application form pages addressing this change.

Thank you for your consideration of this information. Please call if there are any questions.

Sincerely,

GOLDER ASSOCIATES INC.

*David A. Buff*  
David A. Buff, P.E., Q.E.P.  
Principal Engineer  
Florida P.E. #19011



Enclósures

- cc: Gus Cepero
- James Meriwether
- David Dee
- Bill Tarr

*Dr. Kucera*  
\\GATORBAIT\DP\Projects\2000\0037\0037584Y Okeelanta Power LP\F1\WPL110101.doc

- C. Halladay*
- O. Grayson*
- O. Knowles*
- G. Worley, EPA*
- G. Bumpal, NPS*

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
 (Regulated Emissions Units -  
 Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

|  |   |
|--|---|
| 1. Pollutant Emitted:<br><b>SO<sub>2</sub></b>   | 2. Total Percent Efficiency of Control:                       |
| 3. Potential Emissions:<br><b>214.5 lb/hour</b> <b>219.2 tons/year</b>   | 4. Synthetically Limited? <input checked="" type="checkbox"/> |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1      [ ] 2      [ ] 3      _____ to _____ tons/year   |   |
| 6. Emission Factor: <b>0.30 lb/MMBtu</b><br>Reference: <b>CEM Data</b>   | 7. Emissions Method Code:<br><b>0</b>                         |
| 8. Calculation of Emissions (limit to 600 characters):<br><br><b>Hourly: 0.30 lb/MMBtu x 715 MMBtu/hr = 214.5 lb/hr</b><br><b>Annual: 0.07 lb/MMBtu x 715 MMBtu/hr x 8,760 hr/yr x ton/2000 lb = 219.2 TPY</b> |   |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):<br><br><b>402.5 TPY total for all three boilers. Based on biomass firing.</b>   |   |

Allowable Emissions Allowable Emissions 1 of 3

|   |  |
|---|--|
| 1. Basis for Allowable Emissions Code:<br><b>OTHER</b>  | 2. Future Effective Date of Allowable Emissions:                                 |
| 3. Requested Allowable Emissions and Units:<br><b>0.10 lb/MMBtu</b>   | 4. Equivalent Allowable Emissions:<br><br>lb/hour                      tons/year |
| 5. Method of Compliance (limit to 60 characters):<br><br><b>Continuous SO<sub>2</sub> monitor</b>   |  |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><br><b>Requested Allowable Emissions: 0.10 lb/MMBtu 30-day rolling average for biomass firing.</b> |  |



**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
 (Regulated Emissions Units -  
 Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

|   |  |  |  |
|---|--|--|--|
| 1. Pollutant Emitted:<br><b>SO<sub>2</sub></b>  |  | 2. Total Percent Efficiency of Control:            |  |
| 3. Potential Emissions:<br>lb/hour _____ tons/year _____                                |  | 4. Synthetically Limited? <input type="checkbox"/> |  |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year |  |  |  |
| 6. Emission Factor:<br>Reference:   |  | 7. Emissions Method Code:                          |  |
| 8. Calculation of Emissions (limit to 600 characters):                                  |  |  |  |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):            |  |  |  |

Allowable Emissions Allowable Emissions 2 of 3

|   |  |  |  |
|---|--|--|--|
| 1. Basis for Allowable Emissions Code:<br><b>RULE</b>   |  | 2. Future Effective Date of Allowable Emissions:                     |  |
| 3. Requested Allowable Emissions and Units:<br><b>0.07 lb/MMBtu</b>   |  | 4. Equivalent Allowable Emissions:<br>lb/hour <b>219.2</b> tons/year |  |
| 5. Method of Compliance (limit to 60 characters):<br><b>Continuous SO<sub>2</sub> monitor.</b>  |  |  |  |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><b>Requested Allowable Emissions: 0.07 lb/MMBtu 12-month rolling average for biomass firing.</b> |  |  |  |

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
 (Regulated Emissions Units -  
 Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

|   |  |   |  |
|---|--|---|--|
| 1. Pollutant Emitted:<br><b>SO<sub>2</sub></b>  |  | 2. Total Percent Efficiency of Control: |  |
| 3. Potential Emissions:<br>lb/hour  |  | 4. Synthetically Limited? [ ]           |  |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year |  |   |  |
| 6. Emission Factor:<br>Reference:   |  | 7. Emissions Method Code:               |  |
| 8. Calculation of Emissions (limit to 600 characters):                                  |  |   |  |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):            |  |   |  |

Allowable Emissions Allowable Emissions 3 of 3

|  |  |  |  |
|--|--|--|--|
| 1. Basis for Allowable Emissions Code:<br><b>RULE</b>  |  | 2. Future Effective Date of Allowable Emissions:                         |  |
| 3. Requested Allowable Emissions and Units:<br><b>0.05 lb/MMBtu</b>  |  | 4. Equivalent Allowable Emissions:<br><b>24.5 lb/hour 36.7 tons/year</b> |  |
| 5. Method of Compliance (limit to 60 characters):<br><b>Limit fuel oil burning to 24.9% for any single boiler.</b>                       |  |  |  |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><b>Based on No. 2 fuel oil firing and BACT.</b> |  |  |  |

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
 (Regulated Emissions Units -  
 Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

|  |  |   |  |
|--|--|---|--|
| 1. Pollutant Emitted:<br><b>SO<sub>2</sub></b>   |  | 2. Total Percent Efficiency of Control:   |  |
| 3. Potential Emissions:<br><b>214.5 lb/hour</b>  |  | 4. Synthetically Limited? [ <input checked="" type="checkbox"/> ]<br><b>219.2 tons/year</b> |  |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year  |  |   |  |
| 6. Emission Factor: <b>0.30 lb/MMBtu</b><br>Reference: <b>CEM Data</b>   |  | 7. Emissions Method Code:<br><b>0</b>   |  |
| 8. Calculation of Emissions (limit to 600 characters):<br><br><b>Hourly: 0.30 lb/MMBtu x 715 MMBtu/hr = 214.5 lb/hr</b><br><b>Annual: 0.07 lb/MMBtu x 715 MMBtu/hr x 8,760 hr/yr x ton/2000 lb = 219.2 TPY</b> |  |   |  |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):<br><br><b>402.5 TPY total for all three boilers. Based on biomass firing.</b>   |  |   |  |

Allowable Emissions Allowable Emissions 1 of 3

|   |  |  |  |
|---|--|--|--|
| 1. Basis for Allowable Emissions Code:<br><b>OTHER</b>  |  | 2. Future Effective Date of Allowable Emissions:                                 |  |
| 3. Requested Allowable Emissions and Units:<br><b>0.10 lb/MMBtu</b>   |  | 4. Equivalent Allowable Emissions:<br><br>lb/hour                      tons/year |  |
| 5. Method of Compliance (limit to 60 characters):<br><br><b>Continuous SO<sub>2</sub> monitor</b>   |  |  |  |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><br><b>Requested Allowable Emissions: 0.10 lb/MMBtu 30-day rolling average for biomass firing.</b> |  |  |  |

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
 (Regulated Emissions Units -  
 Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

|   |  |   |  |
|---|--|---|--|
| 1. Pollutant Emitted:<br><b>SO<sub>2</sub></b>  |  | 2. Total Percent Efficiency of Control: |  |
| 3. Potential Emissions:<br>lb/hour  |  | 4. Synthetically Limited? [ ]           |  |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year |  |   |  |
| 6. Emission Factor:<br>Reference:   |  | 7. Emissions Method Code:               |  |
| 8. Calculation of Emissions (limit to 600 characters):                                  |  |   |  |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):            |  |   |  |

Allowable Emissions Allowable Emissions  2  of  3

|   |  |  |  |
|---|--|--|--|
| 1. Basis for Allowable Emissions Code:<br><b>RULE</b>   |  | 2. Future Effective Date of Allowable Emissions:                     |  |
| 3. Requested Allowable Emissions and Units:<br><b>0.07 lb/MMBtu</b>   |  | 4. Equivalent Allowable Emissions:<br>lb/hour <b>219.2</b> tons/year |  |
| 5. Method of Compliance (limit to 60 characters):<br><b>Continuous SO<sub>2</sub> monitor.</b>  |  |  |  |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><b>Requested Allowable Emissions: 0.07 lb/MMBtu 12-month rolling average for biomass firing.</b> |  |  |  |

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
 (Regulated Emissions Units -  
 Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

|   |  |   |  |
|---|--|---|--|
| 1. Pollutant Emitted:<br><b>SO<sub>2</sub></b>  |  | 2. Total Percent Efficiency of Control: |  |
| 3. Potential Emissions:<br>lb/hour  |  | 4. Synthetically Limited? [ ]           |  |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year |  |   |  |
| 6. Emission Factor:<br>Reference:   |  | 7. Emissions Method Code:               |  |
| 8. Calculation of Emissions (limit to 600 characters):                                  |  |   |  |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):            |  |   |  |

Allowable Emissions Allowable Emissions  3  of  3

|  |  |  |  |
|--|--|--|--|
| 1. Basis for Allowable Emissions Code:<br><b>RULE</b>  |  | 2. Future Effective Date of Allowable Emissions:                         |  |
| 3. Requested Allowable Emissions and Units:<br><b>0.05 lb/MMBtu</b>  |  | 4. Equivalent Allowable Emissions:<br><b>24.5 lb/hour 36.7 tons/year</b> |  |
| 5. Method of Compliance (limit to 60 characters):<br><b>Limit fuel oil burning to 24.9% for any single boiler.</b>                       |  |  |  |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><b>Based on No. 2 fuel oil firing and BACT.</b> |  |  |  |

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
 (Regulated Emissions Units -  
 Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

|   |  |   |  |
|---|--|---|--|
| 1. Pollutant Emitted:<br><b>SO<sub>2</sub></b>  |  | 2. Total Percent Efficiency of Control:   |  |
| 3. Potential Emissions:<br><b>214.5 lb/hour</b>   |  | 4. Synthetically Limited? [ <input checked="" type="checkbox"/> ]<br><b>219.2 tons/year</b> |  |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year   |  |   |  |
| 6. Emission Factor: <b>0.30 lb/MMBtu</b><br>Reference: <b>CEM Data</b>  |  | 7. Emissions Method Code:<br><b>0</b>   |  |
| 8. Calculation of Emissions (limit to 600 characters):<br><br><b>Hourly: 0.30 lb/MMBtu x 715 MMBtu/hr = 214.5 lb/hr</b><br><b>Annual: 0.07 lb/MMBtu x 715 MMBtu/hr x 8,760 hr/yr x ton/2000 lb =219.2 TPY</b> |  |   |  |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):<br><br><b>402.5 TPY total for all three boilers. Based on biomass firing.</b>  |  |   |  |

Allowable Emissions Allowable Emissions 1 of 3

|   |  |   |  |
|---|--|---|--|
| 1. Basis for Allowable Emissions Code:<br><b>OTHER</b>  |  | 2. Future Effective Date of Allowable Emissions:            |  |
| 3. Requested Allowable Emissions and Units:<br><b>0.10 lb/MMBtu</b>   |  | 4. Equivalent Allowable Emissions:<br><br>lb/hour tons/year |  |
| 5. Method of Compliance (limit to 60 characters):<br><br><b>Continuous SO<sub>2</sub> monitor</b>   |  |   |  |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><br><b>Requested Allowable Emissions: 0.10 lb/MMBtu 30-day rolling average for biomass firing.</b> |  |   |  |

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
 (Regulated Emissions Units -  
 Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

|   |  |   |  |
|---|--|---|--|
| 1. Pollutant Emitted:<br><b>SO<sub>2</sub></b>  |  | 2. Total Percent Efficiency of Control: |  |
| 3. Potential Emissions:<br>lb/hour  |  | 4. Synthetically Limited? [ ]           |  |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year |  |   |  |
| 6. Emission Factor:<br>Reference:   |  | 7. Emissions Method Code:               |  |
| 8. Calculation of Emissions (limit to 600 characters):                                  |  |   |  |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):            |  |   |  |

Allowable Emissions Allowable Emissions  2  of  3

|   |  |  |  |
|---|--|--|--|
| 1. Basis for Allowable Emissions Code:<br><b>RULE</b>   |  | 2. Future Effective Date of Allowable Emissions:                     |  |
| 3. Requested Allowable Emissions and Units:<br><b>0.07 lb/MMBtu</b>   |  | 4. Equivalent Allowable Emissions:<br>lb/hour <b>219.2</b> tons/year |  |
| 5. Method of Compliance (limit to 60 characters):<br><b>Continous SO<sub>2</sub> Monitor.</b>   |  |  |  |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><b>Requested Allowable Emissions: 0.07 lb/MMBtu 12-month rolling average for biomass firing.</b> |  |  |  |

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
 (Regulated Emissions Units -  
 Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

|  |  |  |  |
|--|--|--|--|
| 1. Pollutant Emitted:<br><b>SO<sub>2</sub></b>   |  | 2. Total Percent Efficiency of Control:            |  |
| 3. Potential Emissions:<br><br>lb/hour                                    tons/year                    |  | 4. Synthetically Limited? <input type="checkbox"/> |  |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1      [ ] 2      [ ] 3      _____ to _____ tons/year |  |  |  |
| 6. Emission Factor:<br><br>Reference:  |  | 7. Emissions Method Code:                          |  |
| 8. Calculation of Emissions (limit to 600 characters):<br><br><br><br>                                 |  |  |  |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):<br><br><br><br>           |  |  |  |

Allowable Emissions Allowable Emissions 3 of 3

|   |  |   |  |
|---|--|---|--|
| 1. Basis for Allowable Emissions Code:<br><b>RULE</b>   |  | 2. Future Effective Date of Allowable Emissions:                                  |  |
| 3. Requested Allowable Emissions and Units:<br><b>0.05 lb/MMBtu</b>   |  | 4. Equivalent Allowable Emissions:<br><br><b>24.5 lb/hour      36.7 tons/year</b> |  |
| 5. Method of Compliance (limit to 60 characters):<br><br><b>Limit fuel oil burning to 24.9% for any single boiler.</b>                        |  |   |  |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><br><b>Based on No. 2 fuel oil firing. and BACT.</b> |  |   |  |



**BACT ANALYSIS  
FOR  
CO AND SO<sub>2</sub> EMISSIONS**

**OKEELANTA POWER L.P.  
SOUTH BAY, FLORIDA**

**Prepared For:**

**Okeelanta Power L.P.  
8001 U.S. Highway 27 South  
South Bay, Florida 33493**

**Prepared By:**



**Golder Associates Inc.  
6241 NW 23rd Street, Suite 500  
Gainesville, Florida 32653-1500**

**November 2001  
0137520**

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## **1.0 BEST AVAILABLE CONTROL TECHNOLOGY ANALYSIS**

### **1.1 REQUIREMENTS**

The 1977 Clean Air Act Amendments established requirements for the approval of pre-construction permit applications under the Prevention of Significant Deterioration (PSD) program. One of these requirements is that Best Available Control Technology (BACT) be installed for applicable pollutants. BACT determinations must be made on a case-by-case basis considering technical, economic, energy, and environmental impacts for various BACT alternatives. To bring consistency to the BACT process, the U.S. Environmental Protection Agency (EPA) developed the so called "top-down" approach to BACT determinations. As mentioned previously, this approach has been challenged in court and a settlement agreement reached, which requires EPA to initiate formal rulemaking concerning the "top-down" approach. However, no rule has yet been proposed or promulgated. Nonetheless, in the absence of formal rules related to this approach, the "top-down" approach is followed in the Okeelanta Power L.P. (OkPLP) BACT analysis.

The first step in a top-down BACT analysis is to determine, for each applicable pollutant, the most stringent control alternative available for a similar source or source category. If it can be shown that this level of control is not feasible on the basis of technical, economic, energy, or environmental impacts for the source in question, then the next most stringent level of control is identified and similarly evaluated. This process continues until the BACT level under consideration cannot be eliminated by any technical, economic, energy, or environmental consideration.

In the case of the proposed revision to the permitted emission rates for OkPLP, carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), and fluorides (F) require a BACT analysis. The BACT analysis is presented in the following sections.

### **1.2 SULFUR DIOXIDE**

#### **1.2.1 EXISTING CONTROL TECHNOLOGY**

SO<sub>2</sub> emissions are currently controlled by burning low sulfur content biomass fuel and fuel oil, and by limiting the maximum fuel oil burning to no more than 24.9 percent of the total heat input on a calendar quarter basis. The OkPLP boilers are also permitted to burn natural gas, although this capability has not yet been incorporated into the boilers. Biomass fuel and natural gas are inherently low in sulfur, and therefore produce low SO<sub>2</sub> emissions. SO<sub>2</sub> removal is inherent to the process of

combusting biomass. The fly ash produced during biomass firing is alkaline in nature and acts as a dry scrubbant, adsorbing SO<sub>2</sub> from the exhaust gas stream.

The current emission limit for SO<sub>2</sub> is 0.10 pound per million British thermal units (lb/MMBtu) on a 24-hour average for biomass firing and 0.02 and 0.05 lb/MMBtu on an annual average for bagasse and wood firing, respectively. OkPLP has requested that these limits be increased to 0.20 lb/MMBtu on a 24-hour average and 0.10 lb/MMBtu on an annual average basis [equivalent to 575 tons per year (TPY)] for biomass firing. However, based on discussions with Florida Department of Environmental Protection (FDEP), OkPLP is now proposing a 30-day rolling average SO<sub>2</sub> limit of 0.10 lb/MMBtu, along with a 12-month rolling average of 0.07 lb/MMBtu (equivalent to 402.5 TPY).

OkPLP believes that a lower annual limit compared to the previously requested 0.10 lb/MMBtu (575 TPY) is achievable, based on the highest period of SO<sub>2</sub> emissions experienced to date at OkPLP. Review of SO<sub>2</sub> emissions data from the CEMs shows that the highest 12-month period of SO<sub>2</sub> emissions occurred during the period of June 2000 through May 2001. During this period, SO<sub>2</sub> emissions averaged approximately 0.040 lb/MMBtu for all three cogeneration boilers. In August of this year, the OkPLP boilers were burning 100 percent wood materials. The monthly average SO<sub>2</sub> emissions for the boilers were approximately 0.046 lb/MMBtu. Since the historic SO<sub>2</sub> data has shown a recent increase in SO<sub>2</sub> emissions, future SO<sub>2</sub> emissions due to biomass firing could increase above these historic levels. Considering the potential variability of biomass fuels from south Florida, the potential future fuel mix of wood and bagasse, and possibly higher sulfur content in the fuels, a 12-month rolling average limit of 0.07 lb/MMBtu is proposed for SO<sub>2</sub>.

### **1.2.2 BACT ANALYSIS**

A review of previous SO<sub>2</sub> BACT determinations for industrial boilers listed in the RACT/BACT/LAER Clearinghouse on EPA's web page was performed. A summary of BACT determinations for biomass-fired boilers from this review is presented in Table 1-1. FDEP also provided a listing of BACT determinations for wood-fired boilers. This listing is provided in Table 1-2. All of the boilers listed by FDEP in Table 1-2 are also listed in Table 1-1.

From the review of these previous BACT determinations, it is evident that SO<sub>2</sub> BACT determinations for industrial boilers have typically been fuel specifications (i.e., use of low sulfur-containing fuels).

Proper design, combustion control, wet scrubbers and lime flue gas desulfurization (FGD) have also cited as BACT for biomass-fired boilers. However, it is believed that add-on SO<sub>2</sub> control has not been required on solely a biomass-fired boiler, due to the inherent low SO<sub>2</sub> emissions from biomass firing. Previous BACT determinations have ranged from 0.0083 to 0.46 lb/MMBtu of SO<sub>2</sub> emissions. The highest limit of 0.46 lb/MMBtu was for a boiler burning a combination of bark and sludge. Paper mill sludge can have a higher sulfur content than bark alone due to sulfur concentrating in the sludge.

It is noted that the OkPLP facility is believed to be significantly different than these other wood/bark burning facilities shown in Tables 1-1 and 1-2. OkPLP obtains its wood materials from a number of suppliers and sources throughout south Florida. None of these other sources are located in south Florida, and all are believed to have a dedicated fuel supply source, which means that the fuel is much more homogenous compared to OkPLP.

Technically feasible SO<sub>2</sub> control alternatives for the OkPLP boilers consist of add-on SO<sub>2</sub> control systems. These include wet scrubbers using water, caustic, and other similar scrubbing media. Wet scrubbing using a lime or limestone slurry can also be used, but must be followed by treatment to remove the solids, which then creates a waste disposal problem. Dry FGD systems include lime spray drying, dry lime furnace injection, and dry lime duct injection. These systems must be followed by a highly efficient PM control device, which is typically a fabric filter, although an electrostatic precipitator could also be used. SO<sub>2</sub> control efficiencies for these systems range from 50 to 95 percent, depending on type of device and design.

Each of these alternative SO<sub>2</sub> control systems would result in significant capital and operating costs for OkPLP. In OkPLP's case, three boilers would need to be retrofitted with these systems, substantially increasing the cost over a single boiler. At the proposed SO<sub>2</sub> emission rate of 402.5 TPY for all three boilers combined, each boiler on average would be limited to approximately 134 TPY. The cost effectiveness of add-on equipment would therefore be very high.

The uncontrolled SO<sub>2</sub> emissions from biomass, No. 2 fuel oil and natural gas are very low, which renders any add-on control equipment as too costly. Further, there is inherent SO<sub>2</sub> removal in the boiler/PM control system, based on OkPLP's operating and emissions data. The ash generated from biomass burning is alkaline in nature, and adsorbs SO<sub>2</sub> in the boiler and through contact between the

ash particles and the flue gas stream downstream of the boiler. This phenomenon is also documented in the published literature for wood-fired boilers in the pulp and paper industry. The ash particles are effectively removed in the downstream mechanical dust collectors and electrostatic precipitator.

In summary, the proposed BACT for the OkPLP boilers is the continued use of very low sulfur fuels, i.e., biomass, No. 2 fuel oil, and natural gas. The requested BACT emission limits are 0.10 lb/MMBtu on a 30-day rolling average and 0.07 lb/MMBtu on a 12-month rolling average. This is equivalent to 402.5 TPY on a 12-month rolling average for all three boilers combined.

### **1.3 CARBON MONOXIDE**

#### **1.3.1 EXISTING CONTROL TECHNOLOGY**

CO emissions from the OkPLP boilers are currently controlled through proper furnace design and good combustion practices, including control of combustion air and temperature, improved fuel feeders, distribution of fuel on the combustion grate, and better controls over the furnace loads and transient conditions. Both oxygen and CO continuous monitors are installed on each boiler, providing the boiler operators with valuable information on the combustion conditions. Since there is a cost for the biomass fuel burned in the boilers, the boiler operators are trained to operate the boilers in the most efficient manner possible, which minimizes CO emissions and conserves biomass fuel usage.

OkPLP is proposing a BACT emission limit for CO emissions from the cogeneration boilers as follows: 0.50 lb/MMBtu on a 30-day rolling average, and 0.35 lb/MMBtu as a 12-month rolling average. The equivalent annual emissions are 2,012.5 TPY. This annual emissions limit is the same as the limit in the existing OkPLP PSD permit.

#### **1.3.2 BACT ANALYSIS**

A review of previous CO BACT determinations for industrial boilers listed in the RACT/BACT/LAER Clearinghouse on EPA's web page was performed. A summary of BACT determinations for biomass-fired industrial boilers based on this review is presented in Table 1-3. The FDEP also provided a listing of BACT determinations for wood-fired boilers. This listing is provided in Table 1-2.

The CO emission limits for biomass-fired boilers range from 0.03 to 6.5 lb/MMBtu. This rather large range of emissions is due to differences in boiler design and operation, and fuel characteristics. From the review of previous determinations, it is evident that CO BACT determinations for biomass-fired industrial boilers have been limited to good combustion practices and boiler design.

The OkPLP proposed emission limits are well within the range of previous BACT determinations. OkPLP proposes to use good combustion practices to control CO emissions from the cogeneration boilers. This level of control is consistent with previous determinations. These good combustion practices techniques include maintaining boiler flue gas oxygen levels within the range of 2 to 10 percent (1-hour block average), to the extent possible. If the 1-hour block average oxygen level for a boiler falls outside this range, OkPLP will take corrective actions to bring the oxygen level within the acceptable range as expeditiously as possible. Other good combustion practices, as described above, will continue to be employed at the facility.

In summary, OkPLP proposes to continue the implementation of good combustion practices as BACT for CO emissions. The proposed BACT emission limit for CO emissions from the cogeneration boilers is 0.50 lb/MMBtu on a 30-day rolling average, and 0.35 lb/MMBtu as a 12-month rolling average. The equivalent annual emissions are 2,012.5 TPY.

## **1.4 FLUORIDES**

### **1.4.1 EXISTING CONTROL TECHNOLOGY**

The fuels burned in the cogeneration boilers can contain trace levels of F. Stack testing of both wood and bagasse have indicated very low, although detectable, levels of F in the stack gases of the boilers. Fuel oil can also contain trace levels of F. F contained in the fuels is converted to hydrogen fluoride (HF) in the furnace. HF is an acid gas, and will behave similar to SO<sub>2</sub> in the furnace and downstream control equipment. Thus, as discussed for SO<sub>2</sub>, HF will be adsorbed onto the alkaline ash particles existing in the flue gas. The ash is then removed in the downstream mechanical collectors and electrostatic precipitator, resulting in inherent F control.

### **1.4.2 BACT ANALYSIS**

As part of the BACT analysis, a review of previous F BACT determinations for industrial boilers listed in the RACT/BACT/LAER Clearinghouse on EPA's webpage was performed. A summary of BACT determinations for biomass-fired industrial boilers, from this review, is presented in Table 1-

4. The sole F emission limit for a biomass-fired boiler is 1.7E-03 lb/MMBtu. By comparison, OkPLP's measured F emissions have been less than 7.0E-04 lb/MMBtu for both wood and bagasse. These represent extremely low levels of F emissions. The same control techniques identified to control SO<sub>2</sub> emissions also control F emissions.

As discussed above for SO<sub>2</sub>, any of the add-on SO<sub>2</sub> control systems would result in significant capital and operating costs for OkPLP. In OkPLP's case, three boilers would need to be retrofitted with these systems, substantially increasing the cost over a single boiler. At the very small F emission levels projected for the OkPLP facility (4.0 TPY potential and 1.1 TPY actual), the cost effectiveness of add-on equipment would be extremely high.

F emissions are currently limited to 6.27E-06 lb/MMBtu for No. 2 fuel oil combustion. There is currently no F emission limit for biomass combustion. Estimated maximum F emissions for the cogeneration boilers are 7.00E-04 lb/MMBtu for biomass and 6.27E-06 lb/MMBtu for No. 2 fuel oil. Maximum actual F emissions for all three cogeneration boilers are estimated at 1.1 TPY.



Table 1-1. BACT Determinations for SO<sub>2</sub> and SO<sub>x</sub> for Biomass-Fired Industrial Boilers

| Company                               | State | RBLC ID | Permit Date | Throughput<br>MMBtu/hr | Emission Limits                           |                                       | Control Equipment Description   | % Efficiency |
|---------------------------------------|-------|---------|-------------|------------------------|---|---------------------------------------|---|--------------|
|                                       |       |         |             |                        | As Provided in<br>LAER/BACT Clearinghouse | Converted to<br>lb/MMBtu <sup>a</sup> |   |              |
| Gulf States Paper Corporation         | AL    | AL-0116 | 12/10/97    | 775                    | 355.7 lb/hr                               | 0.46                                  | Proper design and operation. Wood ash alkalinity as scrubbing media. Fuel is bark and clarified sludge. | --           |
| Champion International                | AL    | AL-0112 | 12/9/97     | 710                    | 0.03 lb/MMBtu                             | 0.03                                  | Wet scrubber with soda ash  | 95           |
| Mead Containerboard                   | AL    | AL-0099 | 1/15/97     | 620                    | 0.02 lb/MMBtu                             | 0.02                                  | Combustion control  | --           |
| Willamette Industries - Marlboro Mill | SC    | SC-0045 | 4/17/96     | 470                    | 0.1 lb/MMBtu                              | 0.1                                   | No controls feasible  | --           |
| Scott Paper Company                   | WA    | WA-0276 | 3/9/95      | 718                    | 70 lb/hr 12 mo. avg.                      | 0.10                                  | Fuel spec: backup fuel limited to 0.05% sulfur distillate   | --           |
| SAI Energy, Inc.                      | CA    | CA-0633 | 12/23/94    | 245                    | 0.023 lb/MMBtu                            | 0.023                                 | SNCR ammonia injection; natural gas fuel supplement   | 70           |
| KES Chateaugay Project                | NY    | NY-0055 | 12/19/94    | 275                    | 0.03 lb/MMBtu                             | 0.03                                  | Fuel spec: oil less than 0.08% by wgt. sulfur content   | --           |
| Okeelanta Power Limited Partnership   | FL    | FL-0069 | 9/27/93     | 715                    | 0.02 lb/MMBtu 30-day avg.                 | 0.02                                  | Fuel Spec: low sulfur supplemental fuel APCE includes ESP, SNCR, and Carbon injection.                  | --           |
| Osceola Power Limited Partnership     | FL    | FL-0070 | 9/27/93     | 665                    | 0.02 lb/MMBtu 30-day avg.                 | 0.02                                  | Fuel Spec: low sulfur supplemental fuel   | --           |
| Multitrade Limited Partnership        | VA    | VA-0183 | 2/21/92     | 374                    | 0.016 lb/MMBtu                            | 0.016                                 | No controls feasible  | --           |
| Beaver-Livermore Falls                | ME    | ME-0013 | 9/5/91      | 534                    | 0.023 lb/MMBtu                            | 0.023                                 |   | --           |
| Thermo Electron's Delano Energy       | CA    | CA-0424 | 7/10/91     | 315                    | 13.07 PPM @ 12% CO <sub>2</sub>           |                                       | Limestone injection   | 80           |
| Willamette Industries Inc.            | LA    | LA-0074 | 2/4/91      | 940                    | 7.8 lb/hr                                 | 0.0083                                | Fuel speciation   | --           |
| Alabama River Pulp Co.                | AL    | AL-0047 | 1/22/90     | 266                    | 0.3 lb/MMBtu                              | 0.3                                   |   | --           |
| Cogeneration Michigan, Inc.           | MI    | MI-0147 | 1/16/90     | 293                    | 0.017 lb/MMBtu                            | 0.017                                 |   | --           |
| Hillman Limited Partners              | MI    | MI-0139 | 12/5/89     | 300                    | 0.018 lb/MMBtu                            | 0.018                                 |   | --           |
| Bio-Gen Torrington Partnership        | CT    | CT-0007 |             | 209                    | 0.1 lb/MMBtu                              | 0.1                                   | Fuel spec: fuel analysis  | --           |

Reference: RACT/BACT/LAER Clearinghouse on EPA's Webpage, 2001.

<sup>a</sup> To convert from lb/hr, the emission limit was divided by the throughput rate. To convert from lb/day, assumed 24 hr/day operation.<sup>b</sup> Assumed 8,760 hr/yr.

Table 1-2. BACT for Similar Sources from the EPA RACT/BACT/LAER Clearinghouse (as provided by FDEP)

| RBLC ID | Date  | Facility Name                    | Boiler Type/Fuel | MMBtu/hour | CO, lb/MMBTU | SO <sub>2</sub> , lb/MMBtu  | Add-On Controls Equipment |
|---------|-------|----------------------------------|------------------|------------|--------------|-----------------------------|---------------------------|
| AL-0047 | 1990  | Alabama River Pulp, Co.          | wood             | 266        | 0.3          | 0.3                         | None                      |
| AL-0099 | 1997  | Mead Container Board             | wood, sludge     | 622        | 0.4          | 0.02                        | None                      |
| CT-0007 | >1991 | Bio-Gen Tarrington Partnership   | wood             | 208.5      | 0.29         | 0.10                        | None                      |
| LA-0074 | 1991  | Willamette Industries, Inc.      | wood             | 940        | 0.30         | 0.008                       | None                      |
| ME-0013 | 1991  | Beaver-Livermore Falls           | wood, stoker     | 533.6      | 0.30         | 0.023                       | None                      |
| MI-0139 | 1989  | Hillman Limited Partners         | wood             | 300        | 0.35         | 0.018                       | None                      |
| MI-0147 | 1991  | Cogeneration Michigan, Inc.      | wood             | 293        | 0.35         | 0.017                       | SNCR                      |
| MI-0151 | 1990  | Grayling Generating Station L.P. | wood             | 450/523    | 0.40         | ND                          | SNCR                      |
| MI-0180 | 1992  | Cogeneration Michigan, Ass.      | wood             | 523        | 0.40         | ND                          | SNCR                      |
| MT-0005 | 1995  | Plum Creek Mfg. – Columbia Falls | wood             | 292.4      | 1.6          | ND                          | None                      |
| MT-0007 | 1997  | Plum Creek Mfg. - Evergreen      | hogged wood      | 225        | 2.25         | ND                          | None                      |
| NH-0003 | 1990  | Pinetree Power, Inc. - Bethlehem | wood             | 289        | 0.50         | ND                          | None                      |
| NH-0004 | 1990  | Pinetree Power, Inc. Tamworth    | wood             | 404        | 0.50         | ND                          | None                      |
| NY-0055 | 1994  | KES Chateauguay Project          | wood             | 275        | 0.35         | 0.03                        | Low sulfur fuels          |
| VA-0183 | 1992  | Multitrade Limited Partnership   | wood             | 373.7      | 0.35         | 0.016                       | SNCR                      |
| VT-0004 | 1990  | Ryegate Wood Energy Co.          | wood             | 300        | 0.30         | ND                          | SNCR                      |
| WA-0276 | 1993  | Scott Paper Company              | wood             | 718        | 0.50         | 0.097, 365-day rolling avg. | SNCR                      |

**Summary of CO Standards**

0.290 = minimum standard  
 2.250 = maximum standard  
 0.555 = average of standards  
 1.730 = 95th percentile  
 0.35 = median of standards

**Summary of SO<sub>2</sub> Standards**

0.008 = minimum standard  
 0.300 = maximum standard  
 0.060 = average of standards  
 0.210 = 95th percentile  
 0.022 = median of standards

Table 1-3. BACT Determinations for CO for Biomass-Fired Industrial Boilers

| Company                                | State | RBLC ID | Permit Date | Throughput (MMBtu/hr) | Emission Limits                        |                                    | Control Equipment Description  |
|--|-------|---------|-------------|-----------------------|--|------------------------------------|--|
|  |       |         |             |                       | As Provided in LAER/BACT Clearinghouse | Converted to lb/MMBtu <sup>a</sup> |  |
| Atlantic Sugar Association             | FL    |         | 6/7/01      | 255.3                 | 6.5 lb/MMBtu                           | 6.5                                | Good Combustion Practices  |
| United States Sugar Corporation        | FL    |         | 3/8/01      | 633                   | 6.5 lb/MMBtu                           | 6.5                                | Good Combustion Practices  |
| Gulf States paper Corp.                | AL    | AL-0122 | 10/14/98    | 98                    | 0.5 lb/MMBtu                           | 0.5                                |  |
| Wellborn Cabinet Inc.                  | AL    | AL-0107 | 2/3/98      | 29.5                  | 23.6 lb/hr                             | 0.8                                | Boiler design & combustion control: oxygen trim, staged combustion, steam injection, & overfire air. |
| Champion International                 | AL    | AL-0112 | 12/9/97     | 710                   | 0.03 lb/MMBtu                          | 0.03                               | Proper design and good combustion practices  |
| Plum Creek Mfg. - Evergreen Facility   | MT    | MT-0007 | 2/15/97     | 225                   | 506 lb/hr                              | 2.25                               | Good combustion  |
| Mead Containerboard                    | AL    | AL-0099 | 1/15/97     | 620                   | 0.4 lb/MMBtu                           | 0.4                                | Combustion controls  |
| Vaughan Furniture Company              | VA    | VA-0237 | 8/28/96     | 28                    | 104.2 TPY <sup>b</sup>                 | 0.85                               | No controls feasible   |
| Willamette Industries - Marlboro Mill  | SC    | SC-0045 | 4/17/96     | 470                   | 0.3 lb/MMBtu                           | 0.3                                | Good combustion control  |
| Plum Creek Mfg. LP-Columbia Falls Op'n | MT    | MT-0005 | 7/26/95     | 292.4                 | 468 lb/hr                              | 1.60                               | Good Combustion Practices  |
| Weyerhaeuser Company                   | MS    | MS-0026 | 5/9/95      | 90                    | 0.4 lb/MMBtu                           | 0.4                                | Combustion controls  |
| KES Chateaugay Project                 | NY    | NY-0055 | 12/19/94    | 275                   | 0.35 lb/MMBtu                          | 0.35                               | No controls  |
| Weyerhaeuser Company                   | AL    | AL-0079 | 10/28/94    | 91                    | 1.4 lb/MMBtu                           | 1.4                                |  |
| Scott Paper Company                    | WA    | WA-0276 | 7/1/93      | 718                   | 511 ppm @ 7% O <sub>2</sub>            | --                                 | Combustion control, boiler design  |
| Newman Paper Co.                       | PA    | PA-0093 | 4/24/92     | 129                   | 0.3 lb/MMBtu                           | 0.3                                | Good Combustion Practices  |
| Multitrade Limited Partnership         | VA    | VA-0183 | 2/21/92     | 373.7                 | 0.35 lb/MMBtu                          | 0.4                                | Boiler design  |
| Beaver-Livermore Falls                 | ME    | ME-0013 | 9/5/91      | 533.64                | 0.3 lb/MMBtu                           | 0.3                                | Good combustion control  |
| Willamette Industries Inc.             | LA    | LA-0074 | 2/4/91      | 940                   | 286.1 lb/hr                            | 0.30                               | Design & operation   |
| Pinetree Power - Tamworth Inc.         | NH    | NH-0004 | 11/15/90    | 404                   | 0.5 lb/MMBtu                           | 0.5                                |  |
| Pinetree Power Inc.                    | NH    | NH-0003 | 3/27/90     | 289                   | 0.5 lb/MMBtu                           | 0.5                                |  |
| Grayling Generating Station            | MI    | MI-0151 | 3/20/90     | 450                   | 0.4 lb/MMBtu                           | 0.4                                | Design & operating practices   |
| Alabama River Pulp Co.                 | AL    | AL-0047 | 1/22/90     | 266                   | 0.3 lb/MMBtu                           | 0.3                                |  |
| Cogeneration Michigan, Inc.            | MI    | MI-0147 | 1/16/90     | 293                   | 0.35 lb/MMBtu                          | 0.35                               | Good Combustion Practices  |
| Hillman Limited Partners               | MI    | MI-0139 | 12/5/89     | 300                   | 0.35 lb/MMBtu                          | 0.35                               | Boiler design & good combustion practices  |
| Wood Preservers, Inc.                  | VA    | VA-0166 | 10/12/89    | 48.6                  | 21.6 lb/hr                             | 0.44                               |  |
| Bio-Gcn Torrington Partnership         | CT    | CT-0007 |             | 208.5                 | 0.29 lb/MMBtu                          | 0.29                               | Staged combustion  |
| Cogeneration Michigan Associates       | MI    | MI-0180 |             | 523                   | 0.4 lb/MMBtu                           | 0.4                                | Combustion controls  |

<sup>a</sup> To convert from lb/hr, the emission limit was divided by the throughput rate.<sup>b</sup> Assuming 8,760 hr/yr.

Source: RACT/BACT/LAER Clearinghouse on EPA's Webpage, 2001.

Table 1-4. Summary of BACT Determinations for Fluorides Emissions from Biomass-Fired Industrial Boilers

| Company Name                   | State | RBLC ID | Permit Issue Date | Throughput Per Unit | Emission Limits                        |                       | Control Technology/Comment |
|--------------------------------|-------|---------|-------------------|---------------------|--|-----------------------|----------------------------|
|                                |       |         |                   |                     | As provided in BACT/LAER Clearinghouse | Converted to lb/MMBtu |                            |
| Multitrade Limited Partnership | VA    | VA-0183 | 2/21/92           | 373.7 MMBtu/hr      | 0.64 lb/hr                             | 1.7E-03               | No controls feasible       |

Reference: RACT/BACT/LAER Clearinghouse on EPA's Webpage, 2001

<sup>a</sup> Assumed 8,760 hr/yr.

**Golder Associates Inc.**

6241 NW 23rd Street, Suite 500  
Gainesville, FL 32653-1500  
Telephone (352) 336-5600  
Fax (352) 336-6603

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**BUREAU OF AIR REGULATION**

November 1, 2001

0037584

Florida Department of Environmental Protection  
Bureau of Air Regulation  
2600 Blair Stone Road  
Tallahassee, FL 32399-2400

Attention: Mr. Jeff Koerner, P.E.

RE: OKEELANTA POWER COGENERATION FACILITY  
ARMS FACILITY ID NO. 0990332  
PROJECT NO. 0990332-014-AC/PSD-FL-196M  
APPLICATION TO MODIFY CO AND SO<sub>2</sub> EMISSIONS STANDARDS  
ADDITIONAL INFORMATION NO. 2

Dear Mr. Koerner:

Okeelanta Power Limited Partnership (OkPLP) has received the Department's request to provide a best available control technology (BACT) analysis for CO, SO<sub>2</sub>, and fluoride emissions for the three cogeneration boilers. Note that in the original application submitted by OkPLP for this change in December 2000, the applicant concluded that PSD review applied for CO, SO<sub>2</sub>, fluorides and sulfuric acid mist. As such, a brief BACT analysis was provided in Section 3.0 of said report. During the course of the Department's review of the application, several information requests were received that related to control technology and modeling of emissions. Therefore, it was presumed that the Department had received adequate information on which to base a BACT determination.

Nevertheless, OkPLP is providing an additional analysis of BACT for CO, SO<sub>2</sub> and fluoride emissions. This analysis is attached. As part of this analysis, OkPLP is proposing a lower 12-month rolling average SO<sub>2</sub> limit of 0.07 lb/MMBtu, or 402.5 TPY for all three boilers combined. This is lower than the previously requested annual limit of 0.10 lb/MMBtu and 575 TPY. Also attached are revised application form pages addressing this change.

Thank you for your consideration of this information. Please call if there are any questions.

Sincerely,

GOLDER ASSOCIATES INC.

*David A. Buff*  
David A. Buff, P.E., Q.E.P.  
Principal Engineer  
Florida P.E. #9011

Enclosures

cc: Gus Cepero  
James Meriwether  
David Dee  
Bill Tarr  
*C. Holladay*

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*R. Gronjemi, PBC*  
*G. Bernhardt, WPSJ*  
*B. Worley, EPA*

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
 (Regulated Emissions Units -  
 Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

|  |   |
|--|---|
| 1. Pollutant Emitted:<br><b>SO<sub>2</sub></b>   | 2. Total Percent Efficiency of Control:                       |
| 3. Potential Emissions:<br><b>214.5 lb/hour                      219.2 tons/year</b>   | 4. Synthetically Limited? <input checked="" type="checkbox"/> |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1      [ ] 2      [ ] 3      _____ to _____ tons/year   |   |
| 6. Emission Factor: <b>0.30 lb/MMBtu</b><br>Reference: <b>CEM Data</b>   | 7. Emissions Method Code:<br><b>0</b>                         |
| 8. Calculation of Emissions (limit to 600 characters):<br><br><b>Hourly: 0.30 lb/MMBtu x 715 MMBtu/hr = 214.5 lb/hr</b><br><b>Annual: 0.07 lb/MMBtu x 715 MMBtu/hr x 8,760 hr/yr x ton/2000 lb = 219.2 TPY</b> |   |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):<br><br><b>402.5 TPY total for all three boilers. Based on biomass firing.</b>   |   |

Allowable Emissions Allowable Emissions 1 of 3

|   |  |
|---|--|
| 1. Basis for Allowable Emissions Code:<br><b>OTHER</b>  | 2. Future Effective Date of Allowable Emissions:                                 |
| 3. Requested Allowable Emissions and Units:<br><b>0.10 lb/MMBtu</b>   | 4. Equivalent Allowable Emissions:<br><br>lb/hour                      tons/year |
| 5. Method of Compliance (limit to 60 characters):<br><br><b>Continuous SO<sub>2</sub> monitor</b>   |  |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><br><b>Requested Allowable Emissions: 0.10 lb/MMBtu 30-day rolling average for biomass firing.</b> |  |

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
 (Regulated Emissions Units -  
 Emissions-Limited and Preconstruction Review Pollutants Only)

**Potential/Fugitive Emissions**

|   |  |   |  |
|---|--|---|--|
| 1. Pollutant Emitted:<br><b>SO<sub>2</sub></b>  |  | 2. Total Percent Efficiency of Control: |  |
| 3. Potential Emissions:<br>lb/hour  |  | 4. Synthetically Limited? [ ]           |  |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year |  |   |  |
| 6. Emission Factor:<br>Reference:   |  | 7. Emissions Method Code:               |  |
| 8. Calculation of Emissions (limit to 600 characters):                                  |  |   |  |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):            |  |   |  |

**Allowable Emissions** Allowable Emissions 2 of 3

|   |  |  |  |
|---|--|--|--|
| 1. Basis for Allowable Emissions Code:<br><b>RULE</b>   |  | 2. Future Effective Date of Allowable Emissions:                     |  |
| 3. Requested Allowable Emissions and Units:<br><b>0.07 lb/MMBtu</b>   |  | 4. Equivalent Allowable Emissions:<br>lb/hour <b>219.2</b> tons/year |  |
| 5. Method of Compliance (limit to 60 characters):<br><b>Continous SO<sub>2</sub> monitor.</b>   |  |  |  |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><b>Requested Allowable Emissions: 0.07 lb/MMBtu 12-month rolling average for biomass firing.</b> |  |  |  |





**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
 (Regulated Emissions Units -  
 Emissions-Limited and Preconstruction Review Pollutants Only)

**Potential/Fugitive Emissions**

|  |   |
|--|---|
| 1. Pollutant Emitted:<br><b>SO<sub>2</sub></b>   | 2. Total Percent Efficiency of Control:                       |
| 3. Potential Emissions:<br><b>214.5 lb/hour                      219.2 tons/year</b>   | 4. Synthetically Limited? <input checked="" type="checkbox"/> |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1      [ ] 2      [ ] 3      _____ to _____ tons/year   |   |
| 6. Emission Factor: <b>0.30 lb/MMBtu</b><br>Reference: <b>CEM Data</b>   | 7. Emissions Method Code:<br><b>0</b>                         |
| 8. Calculation of Emissions (limit to 600 characters):<br><br><b>Hourly: 0.30 lb/MMBtu x 715 MMBtu/hr = 214.5 lb/hr</b><br><b>Annual: 0.07 lb/MMBtu x 715 MMBtu/hr x 8,760 hr/yr x ton/2000 lb = 219.2 TPY</b> |   |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):<br><br><b>402.5 TPY total for all three boilers. Based on biomass firing.</b>   |   |

**Allowable Emissions** Allowable Emissions 1 of 3

|   |  |
|---|--|
| 1. Basis for Allowable Emissions Code:<br><b>OTHER</b>  | 2. Future Effective Date of Allowable Emissions:                                 |
| 3. Requested Allowable Emissions and Units:<br><b>0.10 lb/MMBtu</b>   | 4. Equivalent Allowable Emissions:<br><br>lb/hour                      tons/year |
| 5. Method of Compliance (limit to 60 characters):<br><br><b>Continuous SO<sub>2</sub> monitor</b>   |  |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><br><b>Requested Allowable Emissions: 0.10 lb/MMBtu 30-day rolling average for biomass firing.</b> |  |

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
 (Regulated Emissions Units -  
 Emissions-Limited and Preconstruction Review Pollutants Only)

**Potential/Fugitive Emissions**

|   |  |   |                               |
|---|--|---|-------------------------------|
| 1. Pollutant Emitted:<br><b>SO<sub>2</sub></b>  |  | 2. Total Percent Efficiency of Control: |                               |
| 3. Potential Emissions:<br>lb/hour  |  | tons/year                               | 4. Synthetically Limited? [ ] |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year |  |   |                               |
| 6. Emission Factor:<br>Reference:   |  | 7. Emissions Method Code:               |                               |
| 8. Calculation of Emissions (limit to 600 characters):                                  |  |   |                               |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):            |  |   |                               |

**Allowable Emissions** Allowable Emissions 2 of 3

|   |  |  |  |
|---|--|--|--|
| 1. Basis for Allowable Emissions Code:<br><b>RULE</b>   |  | 2. Future Effective Date of Allowable Emissions:                     |  |
| 3. Requested Allowable Emissions and Units:<br><b>0.07 lb/MMBtu</b>   |  | 4. Equivalent Allowable Emissions:<br>lb/hour <b>219.2</b> tons/year |  |
| 5. Method of Compliance (limit to 60 characters):<br><b>Continous SO<sub>2</sub> monitor.</b>   |  |  |  |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><b>Requested Allowable Emissions: 0.07 lb/MMBtu 12-month rolling average for biomass firing.</b> |  |  |  |

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
**(Regulated Emissions Units -**  
**Emissions-Limited and Preconstruction Review Pollutants Only)**

Potential/Fugitive Emissions

|   |  |   |  |
|---|--|---|--|
| 1. Pollutant Emitted:<br><b>SO<sub>2</sub></b>  |  | 2. Total Percent Efficiency of Control: |  |
| 3. Potential Emissions:<br>lb/hour  |  | 4. Synthetically Limited? [ ]           |  |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year |  |   |  |
| 6. Emission Factor:<br>Reference:   |  | 7. Emissions Method Code:               |  |
| 8. Calculation of Emissions (limit to 600 characters):                                  |  |   |  |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):            |  |   |  |

Allowable Emissions Allowable Emissions 3 of 3

|  |  |  |  |
|--|--|--|--|
| 1. Basis for Allowable Emissions Code:<br><b>RULE</b>  |  | 2. Future Effective Date of Allowable Emissions:                         |  |
| 3. Requested Allowable Emissions and Units:<br><b>0.05 lb/MMBtu</b>  |  | 4. Equivalent Allowable Emissions:<br><b>24.5 lb/hour 36.7 tons/year</b> |  |
| 5. Method of Compliance (limit to 60 characters):<br><b>Limit fuel oil burning to 24.9% for any single boiler.</b>                       |  |  |  |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><b>Based on No. 2 fuel oil firing and BACT.</b> |  |  |  |

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
 (Regulated Emissions Units -  
 Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

|   |   |
|---|---|
| 1. Pollutant Emitted:<br><b>SO<sub>2</sub></b>  | 2. Total Percent Efficiency of Control:                       |
| 3. Potential Emissions:<br><b>214.5 lb/hour</b> <b>219.2 tons/year</b>  | 4. Synthetically Limited? <input checked="" type="checkbox"/> |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1      [ ] 2      [ ] 3      _____ to _____ tons/year  |   |
| 6. Emission Factor: <b>0.30 lb/MMBtu</b><br>Reference: <b>CEM Data</b>  | 7. Emissions Method Code:<br><b>0</b>                         |
| 8. Calculation of Emissions (limit to 600 characters):<br><br><b>Hourly: 0.30 lb/MMBtu x 715 MMBtu/hr = 214.5 lb/hr</b><br><b>Annual: 0.07 lb/MMBtu x 715 MMBtu/hr x 8,760 hr/yr x ton/2000 lb =219.2 TPY</b> |   |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):<br><br><b>402.5 TPY total for all three boilers. Based on biomass firing.</b>  |   |

Allowable Emissions Allowable Emissions 1 of 3

|   |  |
|---|--|
| 1. Basis for Allowable Emissions Code:<br><b>OTHER</b>  | 2. Future Effective Date of Allowable Emissions:                                 |
| 3. Requested Allowable Emissions and Units:<br><b>0.10 lb/MMBtu</b>   | 4. Equivalent Allowable Emissions:<br><br>lb/hour                      tons/year |
| 5. Method of Compliance (limit to 60 characters):<br><br><b>Continuous SO<sub>2</sub> monitor</b>   |  |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><br><b>Requested Allowable Emissions: 0.10 lb/MMBtu 30-day rolling average for biomass firing.</b> |  |

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
 (Regulated Emissions Units -  
 Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

|   |  |   |  |
|---|--|---|--|
| 1. Pollutant Emitted:<br><b>SO<sub>2</sub></b>  |  | 2. Total Percent Efficiency of Control: |  |
| 3. Potential Emissions:<br>lb/hour  |  | 4. Synthetically Limited? [ ]           |  |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year |  |   |  |
| 6. Emission Factor:<br>Reference:   |  | 7. Emissions Method Code:               |  |
| 8. Calculation of Emissions (limit to 600 characters):                                  |  |   |  |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):            |  |   |  |

Allowable Emissions Allowable Emissions 2 of 3

|   |  |  |  |
|---|--|--|--|
| 1. Basis for Allowable Emissions Code:<br><b>RULE</b>   |  | 2. Future Effective Date of Allowable Emissions:                     |  |
| 3. Requested Allowable Emissions and Units:<br><b>0.07 lb/MMBtu</b>   |  | 4. Equivalent Allowable Emissions:<br>lb/hour <b>219.2</b> tons/year |  |
| 5. Method of Compliance (limit to 60 characters):<br><b>Continous SO<sub>2</sub> Monitor.</b>   |  |  |  |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><b>Requested Allowable Emissions: 0.07 lb/MMBtu 12-month rolling average for biomass firing.</b> |  |  |  |

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
 (Regulated Emissions Units -  
 Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

|   |  |   |  |
|---|--|---|--|
| 1. Pollutant Emitted:<br><b>SO<sub>2</sub></b>  |  | 2. Total Percent Efficiency of Control: |  |
| 3. Potential Emissions:<br>lb/hour  |  | 4. Synthetically Limited? [ ]           |  |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year |  |   |  |
| 6. Emission Factor:<br>Reference:   |  | 7. Emissions Method Code:               |  |
| 8. Calculation of Emissions (limit to 600 characters):                                  |  |   |  |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):            |  |   |  |

Allowable Emissions Allowable Emissions 3 of 3

|   |  |  |  |
|---|--|--|--|
| 1. Basis for Allowable Emissions Code:<br><b>RULE</b>   |  | 2. Future Effective Date of Allowable Emissions:                         |  |
| 3. Requested Allowable Emissions and Units:<br><b>0.05 lb/MMBtu</b>   |  | 4. Equivalent Allowable Emissions:<br><b>24.5 lb/hour 36.7 tons/year</b> |  |
| 5. Method of Compliance (limit to 60 characters):<br><b>Limit fuel oil burning to 24.9% for any single boiler.</b>                        |  |  |  |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><b>Based on No. 2 fuel oil firing. and BACT.</b> |  |  |  |

**BACT ANALYSIS  
FOR  
CO AND SO<sub>2</sub> EMISSIONS  
OKEELANTA POWER L.P.  
SOUTH BAY, FLORIDA**

**Prepared For:**

**Okeelanta Power L.P.  
8001 U.S. Highway 27 South  
South Bay, Florida 33493**

**Prepared By:**



**Golder Associates Inc.  
6241 NW 23rd Street, Suite 500  
Gainesville, Florida 32653-1500**

**November 2001  
0137520**

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## **1.0 BEST AVAILABLE CONTROL TECHNOLOGY ANALYSIS**

### **1.1 REQUIREMENTS**

The 1977 Clean Air Act Amendments established requirements for the approval of pre-construction permit applications under the Prevention of Significant Deterioration (PSD) program. One of these requirements is that Best Available Control Technology (BACT) be installed for applicable pollutants. BACT determinations must be made on a case-by-case basis considering technical, economic, energy, and environmental impacts for various BACT alternatives. To bring consistency to the BACT process, the U.S. Environmental Protection Agency (EPA) developed the so called "top-down" approach to BACT determinations. As mentioned previously, this approach has been challenged in court and a settlement agreement reached, which requires EPA to initiate formal rulemaking concerning the "top-down" approach. However, no rule has yet been proposed or promulgated. Nonetheless, in the absence of formal rules related to this approach, the "top-down" approach is followed in the Okeelanta Power L.P. (OkPLP) BACT analysis.

The first step in a top-down BACT analysis is to determine, for each applicable pollutant, the most stringent control alternative available for a similar source or source category. If it can be shown that this level of control is not feasible on the basis of technical, economic, energy, or environmental impacts for the source in question, then the next most stringent level of control is identified and similarly evaluated. This process continues until the BACT level under consideration cannot be eliminated by any technical, economic, energy, or environmental consideration.

In the case of the proposed revision to the permitted emission rates for OkPLP, carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), and fluorides (F) require a BACT analysis. The BACT analysis is presented in the following sections.

### **1.2 SULFUR DIOXIDE**

#### **1.2.1 EXISTING CONTROL TECHNOLOGY**

SO<sub>2</sub> emissions are currently controlled by burning low sulfur content biomass fuel and fuel oil, and by limiting the maximum fuel oil burning to no more than 24.9 percent of the total heat input on a calendar quarter basis. The OkPLP boilers are also permitted to burn natural gas, although this capability has not yet been incorporated into the boilers. Biomass fuel and natural gas are inherently low in sulfur, and therefore produce low SO<sub>2</sub> emissions. SO<sub>2</sub> removal is inherent to the process of

combusting biomass. The fly ash produced during biomass firing is alkaline in nature and acts as a dry scrubbant, adsorbing SO<sub>2</sub> from the exhaust gas stream.

The current emission limit for SO<sub>2</sub> is 0.10 pound per million British thermal units (lb/MMBtu) on a 24-hour average for biomass firing and 0.02 and 0.05 lb/MMBtu on an annual average for bagasse and wood firing, respectively. OkPLP has requested that these limits be increased to 0.20 lb/MMBtu on a 24-hour average and 0.10 lb/MMBtu on an annual average for biomass firing. However, based on discussions with Florida Department of Environmental Protection (FDEP), OkPLP is now proposing a 30-day rolling average SO<sub>2</sub> limit of 0.10 lb/MMBtu, along with a 12-month rolling average of 0.06 lb/MMBtu [equivalent to 345 tons per year (TPY)].

OkPLP believes that a lower annual limit compared to the previously requested 0.10 lb/MMBtu (575 TPY) is achievable, based on the highest period of SO<sub>2</sub> emissions experienced to date at OkPLP. Review of SO<sub>2</sub> emissions data shows that the highest 12-month period of SO<sub>2</sub> emissions occurred during the period of June 2000 through May 2001. During this period, SO<sub>2</sub> emissions averaged approximately 0.040 lb/MMBtu for all three cogeneration boilers. Considering the potential variability of biomass fuels from south Florida, the potential future fuel mix of wood and bagasse, a permitted level of 0.06 lb/MMBtu is acceptable.

### **1.2.2 BACT ANALYSIS**

A review of previous SO<sub>2</sub> BACT determinations for industrial boilers listed in the RACT/BACT/LAER Clearinghouse on EPA's web page was performed. A summary of BACT determinations for biomass-fired boilers from this review is presented in Table 1-1. FDEP also provided a listing of BACT determinations for wood-fired boilers. This listing is provided in Table 1-2. All of the boilers listed by FDEP in Table 1-2 are also listed in Table 1-1.

From the review of these previous BACT determinations, it is evident that SO<sub>2</sub> BACT determinations for industrial boilers have typically been fuel specifications (i.e., use of low sulfur-containing fuels). Proper design, combustion control, wet scrubbers and lime flue gas desulfurization (FGD) have also cited as BACT for biomass-fired boilers. However, it is believed that add-on SO<sub>2</sub> control has not been required on solely a biomass-fired boiler, due to the inherent low SO<sub>2</sub> emissions from biomass firing. Previous BACT determinations have ranged from 0.0083 to 0.46 lb/MMBtu of SO<sub>2</sub> emissions. The highest limit of 0.46 lb/MMBtu was for a boiler burning a combination of bark and sludge.

Paper mill sludge can have a higher sulfur content than bark alone due to sulfur concentrating in the sludge.

It is noted that the OkPLP facility is believed to be significantly different than these other wood/bark burning facilities shown in Tables 1-1 and 1-2. OkPLP obtains its wood materials from a number of suppliers and sources throughout south Florida. None of these other sources are located in south Florida, and all are believed to have a dedicated fuel supply source, which means that the fuel is much more homogenous compared to OkPLP.

Technically feasible SO<sub>2</sub> control alternatives for the OkPLP boilers consist of add-on SO<sub>2</sub> control systems. These include wet scrubbers using water, caustic, and other similar scrubbing media. Wet scrubbing using a lime or limestone slurry can also be used, but must be followed treatment to remove the solids, which then creates a waste disposal problem. Dry FGD systems include lime spray drying, dry lime furnace injection, and dry lime duct injection. These systems must be followed by a highly efficient PM control device, which is typically a fabric filter, although an electrostatic precipitator could also be used. SO<sub>2</sub> control efficiencies for these systems range from 50 to 95 percent, depending on type of device and design.

Each of these alternative SO<sub>2</sub> control systems would result in significant capital and operating costs for OkPLP. In OkPLP's case, three boilers would need to be retrofitted with these systems, substantially increasing the cost over a single boiler. At the proposed SO<sub>2</sub> emission rate of 345 TPY for all three boilers, each boiler on average would be limited to approximately 115 TPY. The cost effectiveness of add-on equipment would be very high.

The uncontrolled SO<sub>2</sub> emissions from biomass, No. 2 fuel oil and natural gas are very low, which renders any add-on control equipment as too costly. Further, there is inherent SO<sub>2</sub> removal in the boiler/PM control system, based on OkPLP's operating and emissions data. The ash generated from biomass burning is alkaline in nature, and adsorbs SO<sub>2</sub> in the boiler and through contact between the ash particles and the flue gas stream downstream of the boiler. This phenomena is also documented in the published literature for wood-fired boilers in the pulp and paper industry. The ash particles are effectively removed in the downstream mechanical dust collectors and electrostatic precipitator.

In summary, the proposed BACT for the OkPLP boilers is the continued use of very low sulfur fuels, i.e., biomass, No. 2 fuel oil, and natural gas. The requested BACT emission limits are 0.10 lb/MMBtu on a 30-day rolling average and 0.060 lb/MMBtu on a 12-month rolling average. This is equivalent to 345 TPY on a 12-month rolling average.

### **1.3 CARBON MONOXIDE**

#### **1.3.1 EXISTING CONTROL TECHNOLOGY**

CO emissions from the OkPLP boilers are currently controlled through proper furnace design and good combustion practices, including control of combustion air and temperature, improved fuel feeders, distribution of fuel on the combustion grate, and better controls over the furnace loads and transient conditions. Both oxygen and CO continuous monitors are installed on each boiler, providing the boiler operators with valuable information on the combustion conditions. Since there is a cost for the biomass fuel burned in the boilers, the boiler operators are trained to operate the boilers in the most efficient manner possible, which minimizes CO emissions and conserves biomass fuel usage.

OkPLP is proposing a BACT emission limit for CO emissions from the cogeneration boilers as follows: 0.50 lb/MMBtu on a 30-day rolling average, and 0.35 lb/MMBtu as a 12-month rolling average. The equivalent annual emissions are 2,012.5 TPY. This annual emissions limit is the same as the limit in the existing OkPLP PSD permit.

#### **1.3.2 BACT ANALYSIS**

A review of previous CO BACT determinations for industrial boilers listed in the RACT/BACT/LAER Clearinghouse on EPA's web page was performed. A summary of BACT determinations for biomass-fired industrial boilers from this review are presented in Table 1-3. The FDEP also provided a listing of BACT determinations for wood-fired boilers. This listing is provided in Table 1-2.

The CO emission limits for biomass-fired boilers range from 0.03 to 6.5 lb/MMBtu. This rather large range of emissions is due to differences in boiler design and operation, and fuel characteristics. From the review of previous determinations, it is evident that CO BACT determinations for biomass-fired industrial boilers have been limited to good combustion practices and boiler design.

The OkPLP proposed emission limits are well within the range of previous BACT determinations. OkPLP proposes to use good combustion practices to control CO emissions from the cogeneration boilers. This level of control is consistent with previous determinations. OkPLP has agreed to maintain the boiler flue gas oxygen level in the boilers within the range of 2 to 10 percent (1-hour block average), to the extent possible, as a good combustion practices technique. If the 1-hour average oxygen levels falls outside this range, OkPLP will take corrective actions to bring the oxygen level within the acceptable range as expeditiously as possible. Other good combustion practices, as described above, will continue to be employed at the facility.

In summary, OkPLP proposes to continue the implementation of good combustion practices as BACT for CO emissions. The proposed BACT emission limit for CO emissions from the cogeneration boilers is 0.50 lb/MMBtu on a 30-day rolling average, and 0.35 lb/MMBtu as a 12-month rolling average. The equivalent annual emissions are 2,012.5 TPY.

## **1.4 FLUORIDES**

### **1.4.1 EXISTING CONTROL TECHNOLOGY**

The fuels burned in the cogeneration boilers can contain trace levels of F. Stack testing of both wood and bagasse have indicated very low, although detectable, levels of F in the stack gases of the boilers. Fuel oil can also contain trace levels of F. F contained in the fuels is converted to hydrogen fluoride (HF) in the furnace. HF is an acid gas, and will behave similar to SO<sub>2</sub> in the furnace and downstream control equipment. Thus, as discussed for SO<sub>2</sub>, HF will be adsorbed onto the alkaline ash particles existing in the flue gas. The ash is then removed in the downstream mechanical collectors and electrostatic precipitator, resulting in inherent F control.

### **1.4.2 BACT ANALYSIS**

As part of the BACT analysis, a review of previous F BACT determinations for industrial boilers listed in the RACT/BACT/LAER Clearinghouse on EPA's webpage was performed. A summary of the BACT determination for biomass-fired industrial boilers from this review are presented in Table 1-4. The sole F emission limit for a biomass-fired boiler is 1.7E-03 lb/MMBtu. By comparison, OkPLP's measured F emissions have been less than 7.0E-04 lb/MMBtu for both wood and bagasse. These represent extremely low levels of F emissions. The same control techniques identified to control SO<sub>2</sub> emissions also control F emissions.

As discussed above for SO<sub>2</sub>, any of the add-on SO<sub>2</sub> control systems would result in significant capital and operating costs for OkPLP. In OkPLP's case, three boilers would need to be retrofitted with these systems, substantially increasing the cost over a single boiler. At the very small F emission levels projected for the OkPLP facility (4.0 TPY potential and 1.1 TPY actual), the cost effectiveness of add-on equipment would be extremely high.

F emissions are currently limited to 6.27E-06 lb/MMBtu for No. 2 fuel oil combustion. There is currently no F emission limit for biomass combustion. Estimated maximum F emissions for the cogeneration boilers are 7.00E-04 lb/MMBtu for biomass and 6.27E-06 lb/MMBtu for No. 2 fuel oil. Maximum actual F emissions for all three cogeneration boilers are estimated at 1.1 TPY.

Table I-1. BACT Determinations for SO<sub>2</sub> and SO<sub>x</sub> for Biomass-Fired Industrial Boilers

| Company                               | State | RBLC ID | Permit Date | Throughput<br>MMBtu/hr | Emission Limits                           |                                       | Control Equipment Description   | % Efficiency |
|---------------------------------------|-------|---------|-------------|------------------------|---|---------------------------------------|---|--------------|
|                                       |       |         |             |                        | As Provided in<br>LAER/BACT Clearinghouse | Converted to<br>lb/MMBtu <sup>a</sup> |   |              |
| Gulf States Paper Corporation         | AL    | AL-0116 | 12/10/97    | 775                    | 355.7 lb/hr                               | 0.46                                  | Proper design and operation. Wood ash alkalinity as scrubbing media. Fuel is bark and clarified sludge. | --           |
| Champion International                | AL    | AL-0112 | 12/9/97     | 710                    | 0.03 lb/MMBtu                             | 0.03                                  | Wet scrubber with soda ash  | 95           |
| Mead Containerboard                   | AL    | AL-0099 | 1/15/97     | 620                    | 0.02 lb/MMBtu                             | 0.02                                  | Combustion control  | --           |
| Willamette Industries - Marlboro Mill | SC    | SC-0045 | 4/17/96     | 470                    | 0.1 lb/MMBtu                              | 0.1                                   | No controls feasible  | --           |
| Scott Paper Company                   | WA    | WA-0276 | 3/9/95      | 718                    | 70 lb/hr 12 mo. avg.                      | 0.10                                  | Fuel spec: backup fuel limited to 0.05% sulfur distillate   | --           |
| SAI Energy, Inc.                      | CA    | CA-0633 | 12/23/94    | 245                    | 0.023 lb/MMBtu                            | 0.023                                 | SNCR ammonia injection; natural gas fuel supplement   | 70           |
| KES Chateaugay Project                | NY    | NY-0055 | 12/19/94    | 275                    | 0.03 lb/MMBtu                             | 0.03                                  | Fuel spec: oil less than 0.08% by wgt. sulfur content   | --           |
| Okeelanta Power Limited Partnership   | FL    | FL-0069 | 9/27/93     | 715                    | 0.02 lb/MMBtu 30-day avg.                 | 0.02                                  | Fuel Spec: low sulfur supplemental fuel APCE includes ESP, SNCR, and Carbon injection.                  | --           |
| Osceola Power Limited Partnership     | FL    | FL-0070 | 9/27/93     | 665                    | 0.02 lb/MMBtu 30-day avg.                 | 0.02                                  | Fuel Spec: low sulfur supplemental fuel   | --           |
| Multitrade Limited Partnership        | VA    | VA-0183 | 2/21/92     | 374                    | 0.016 lb/MMBtu                            | 0.016                                 | No controls feasible  | --           |
| Beaver-Livermore Falls                | ME    | ME-0013 | 9/5/91      | 534                    | 0.023 lb/MMBtu                            | 0.023                                 |   | --           |
| Thermo Electron's Delano Energy       | CA    | CA-0424 | 7/10/91     | 315                    | 13.07 PPM @ 12% CO <sub>2</sub>           |                                       | Limestone injection   | 80           |
| Willamette Industries Inc.            | LA    | LA-0074 | 2/4/91      | 940                    | 7.8 lb/hr                                 | 0.0083                                | Fuel speciation   | --           |
| Alabama River Pulp Co.                | AL    | AL-0047 | 1/22/90     | 266                    | 0.3 lb/MMBtu                              | 0.3                                   |   | --           |
| Cogeneration Michigan, Inc.           | MI    | MI-0147 | 1/16/90     | 293                    | 0.017 lb/MMBtu                            | 0.017                                 |   | --           |
| Hillman Limited Partners              | MI    | MI-0139 | 12/5/89     | 300                    | 0.018 lb/MMBtu                            | 0.018                                 |   | --           |
| Bio-Gen Torrington Partnership        | CT    | CT-0007 |             | 209                    | 0.1 lb/MMBtu                              | 0.1                                   | Fuel spec: fuel analysis  | --           |

Reference: RACT/BACT/LAER Clearinghouse on EPA's Webpage, 2001.

<sup>a</sup> To convert from lb/hr, the emission limit was divided by the throughput rate. To convert from lb/day, assumed 24 hr/day operation.<sup>b</sup> Assumed 8,760 hr/yr.

Table 1-2. BACT for Similar Sources from the EPA RACT/BACT/LAER Clearinghouse (as provided by FDEP)

| RBLC ID | Date  | Facility Name                    | Boiler Type/Fuel | MMBtu/hour | CO, lb/MMBTU | SO <sub>2</sub> , lb/MMBtu  | Add-On Controls Equipment |
|---------|-------|----------------------------------|------------------|------------|--------------|-----------------------------|---------------------------|
| AL-0047 | 1990  | Alabama River Pulp, Co.          | wood             | 266        | 0.3          | 0.3                         | None                      |
| AL-0099 | 1997  | Mead Container Board             | wood, sludge     | 622        | 0.4          | 0.02                        | None                      |
| CT-0007 | >1991 | Bio-Gen Tarrington Partnership   | wood             | 208.5      | 0.29         | 0.10                        | None                      |
| LA-0074 | 1991  | Willamette Industries, Inc.      | wood             | 940        | 0.30         | 0.008                       | None                      |
| ME-0013 | 1991  | Beaver-Livermore Falls           | wood, stoker     | 533.6      | 0.30         | 0.023                       | None                      |
| MI-0139 | 1989  | Hillman Limited Partners         | wood             | 300        | 0.35         | 0.018                       | None                      |
| MI-0147 | 1991  | Cogeneration Michigan, Inc.      | wood             | 293        | 0.35         | 0.017                       | SNCR                      |
| MI-0151 | 1990  | Grayling Generating Station L.P. | wood             | 450/523    | 0.40         | ND                          | SNCR                      |
| MI-0180 | 1992  | Cogeneration Michigan, Ass.      | wood             | 523        | 0.40         | ND                          | SNCR                      |
| MT-0005 | 1995  | Plum Creek Mfg. – Columbia Falls | wood             | 292.4      | 1.6          | ND                          | None                      |
| MT-0007 | 1997  | Plum Creek Mfg. - Evergreen      | hogged wood      | 225        | 2.25         | ND                          | None                      |
| NH-0003 | 1990  | Pinetree Power, Inc. - Bethlehem | wood             | 289        | 0.50         | ND                          | None                      |
| NH-0004 | 1990  | Pinetree Power, Inc. Tamworth    | wood             | 404        | 0.50         | ND                          | None                      |
| NY-0055 | 1994  | KES Chateauguay Project          | wood             | 275        | 0.35         | 0.03                        | Low sulfur fuels          |
| VA-0183 | 1992  | Multitrade Limited Partnership   | wood             | 373.7      | 0.35         | 0.016                       | SNCR                      |
| VT-0004 | 1990  | Ryegate Wood Energy Co.          | wood             | 300        | 0.30         | ND                          | SNCR                      |
| WA-0276 | 1993  | Scott Paper Company              | wood             | 718        | 0.50         | 0.097, 365-day rolling avg. | SNCR                      |

**Summary of CO Standards**

0.290 = minimum standard  
 2.250 = maximum standard  
 0.555 = average of standards  
 1.730 = 95th percentile  
 0.35 = median of standards

**Summary of SO<sub>2</sub> Standards**

0.008 = minimum standard  
 0.300 = maximum standard  
 0.060 = average of standards  
 0.210 = 95th percentile  
 0.022 = median of standards



Table 1-3. BACT Determinations for CO for Biomass-Fired Industrial Boilers

| Company                                | State | RBLC ID | Permit Date | Throughput (MMBtu/hr) | Emission Limits                        |                                    | Control Equipment Description  |
|--|-------|---------|-------------|-----------------------|--|------------------------------------|--|
|  |       |         |             |                       | As Provided in LAER/BACT Clearinghouse | Converted to lb/MMBtu <sup>a</sup> |  |
| Atlantic Sugar Association             | FL    |         | 6/7/01      | 255.3                 | 6.5 lb/MMBtu                           | 6.5                                | Good Combustion Practices  |
| United States Sugar Corporation        | FL    |         | 3/8/01      | 633                   | 6.5 lb/MMBtu                           | 6.5                                | Good Combustion Practices  |
| Gulf States paper Corp.                | AL    | AL-0122 | 10/14/98    | 98                    | 0.5 lb/MMBtu                           | 0.5                                |  |
| Wellborn Cabinet Inc.                  | AL    | AL-0107 | 2/3/98      | 29.5                  | 23.6 lb/hr                             | 0.8                                | Boiler design & combustion control: oxygen trim, staged combustion, steam injection, & overfire air. |
| Champion International                 | AL    | AL-0112 | 12/9/97     | 710                   | 0.03 lb/MMBtu                          | 0.03                               | Proper design and good combustion practices  |
| Plum Creek Mfg. - Evergreen Facility   | MT    | MT-0007 | 2/15/97     | 225                   | 506 lb/hr                              | 2.25                               | Good combustion  |
| Mead Containerboard                    | AL    | AL-0099 | 1/15/97     | 620                   | 0.4 lb/MMBtu                           | 0.4                                | Combustion controls  |
| Vaughan Furniture Company              | VA    | VA-0237 | 8/28/96     | 28                    | 104.2 TPY <sup>b</sup>                 | 0.85                               | No controls feasible   |
| Willamette Industries - Marlboro Mill  | SC    | SC-0045 | 4/17/96     | 470                   | 0.3 lb/MMBtu                           | 0.3                                | Good combustion control  |
| Plum Creek Mfg. LP-Columbia Falls Op'n | MT    | MT-0005 | 7/26/95     | 292.4                 | 468 lb/hr                              | 1.60                               | Good Combustion Practices  |
| Weyerhaeuser Company                   | MS    | MS-0026 | 5/9/95      | 90                    | 0.4 lb/MMBtu                           | 0.4                                | Combustion controls  |
| KES Chateaugay Project                 | NY    | NY-0055 | 12/19/94    | 275                   | 0.35 lb/MMBtu                          | 0.35                               | No controls  |
| Weyerhaeuser Company                   | AL    | AL-0079 | 10/28/94    | 91                    | 1.4 lb/MMBtu                           | 1.4                                |  |
| Scott Paper Company                    | WA    | WA-0276 | 7/1/93      | 718                   | 511 ppm @ 7% O <sub>2</sub>            | --                                 | Combustion control, boiler design  |
| Newman Paper Co.                       | PA    | PA-0093 | 4/24/92     | 129                   | 0.3 lb/MMBtu                           | 0.3                                | Good Combustion Practices  |
| Multitrade Limited Partnership         | VA    | VA-0183 | 2/21/92     | 373.7                 | 0.35 lb/MMBtu                          | 0.4                                | Boiler design  |
| Beaver-Livermore Falls                 | ME    | ME-0013 | 9/5/91      | 533.64                | 0.3 lb/MMBtu                           | 0.3                                | Good combustion control  |
| Willamette Industries Inc.             | LA    | LA-0074 | 2/4/91      | 940                   | 286.1 lb/hr                            | 0.30                               | Design & operation   |
| Pinetree Power - Tamworth Inc.         | NH    | NH-0004 | 11/15/90    | 404                   | 0.5 lb/MMBtu                           | 0.5                                |  |
| Pinetree Power Inc.                    | NH    | NH-0003 | 3/27/90     | 289                   | 0.5 lb/MMBtu                           | 0.5                                |  |
| Grayling Generating Station            | MI    | MI-0151 | 3/20/90     | 450                   | 0.4 lb/MMBtu                           | 0.4                                | Design & operating practices   |
| Alabama River Pulp Co.                 | AL    | AL-0047 | 1/22/90     | 266                   | 0.3 lb/MMBtu                           | 0.3                                |  |
| Cogeneration Michigan, Inc.            | MI    | MI-0147 | 1/16/90     | 293                   | 0.35 lb/MMBtu                          | 0.35                               | Good Combustion Practices  |
| Hillman Limited Partners               | MI    | MI-0139 | 12/5/89     | 300                   | 0.35 lb/MMBtu                          | 0.35                               | Boiler design & good combustion practices  |
| Wood Preservers, Inc.                  | VA    | VA-0166 | 10/12/89    | 48.6                  | 21.6 lb/hr                             | 0.44                               |  |
| Bio-Gen Torrington Partnership         | CT    | CT-0007 |             | 208.5                 | 0.29 lb/MMBtu                          | 0.29                               | Staged combustion  |
| Cogeneration Michigan Associates       | MI    | MI-0180 |             | 523                   | 0.4 lb/MMBtu                           | 0.4                                | Combustion controls  |

<sup>a</sup> To convert from lb/hr, the emission limit was divided by the throughput rate.

<sup>b</sup> Assuming 8,760 hr/yr.

Source: RACT/BACT/LAER Clearinghouse on EPA's Webpage, 2001.

Table 1-4. Summary of BACT Determinations for Fluorides Emissions from Biomass-Fired Industrial Boilers

| Company Name                   | State | RBLC ID | Permit Issue Date | Throughput Per Unit | Emission Limits                        |                       | Control Technology/Comment |
|--------------------------------|-------|---------|-------------------|---------------------|--|-----------------------|----------------------------|
|                                |       |         |                   |                     | As provided in BACT/LAER Clearinghouse | Converted to lb/MMBtu |                            |
| Multitrade Limited Partnership | VA    | VA-0183 | 2/21/92           | 373.7 MMBtu/hr      | 0.64 lb/hr                             | 1.7E-03               | No controls feasible       |

Reference: RACT/BACT/LAER Clearinghouse on EPA's Webpage, 2001

<sup>a</sup> Assumed 8,760 hr/yr.

**BEST AVAILABLE COPY****Golder Associates Fax****To:** Jeffery Koerner, P. E.**Fax Number:** 850-922-6979**Company:** FDEP, Tallahassee**Date:** October 23, 2001**From:** David Buff**e-mail:** @golder.com**Our ref:****Voice Mail:****RE:** Okeelanta Power Limited Partnership**Total pages (including cover):** 2**Hard copy to follow** **MESSAGE**

6241 NW 23rd St., Suite 500  
Gainesville, FL 32653  
U.S.A.  
Telephone: (352) 336-5600  
Fax: (352) 336-6603

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**WAIVER OF PERMIT APPLICATION PROCESSING TIME PERIODS  
UNDER SECTIONS 120.60(1), 403.0872 AND 403.0876 FLORIDA STATUTES**

Permit Application/Project: 0990332-014-AC

**Cogeneration Boilers Permit Modification**

Facility ID No.: 0990332

Applicant's Name: Okeelanta Power Limited Partnership

The undersigned has read sections 120.60(1), 403.0872 and 403.0876, Florida Statues, and fully understands the applicant's rights under those sections. With regard to the above referenced permit application, the applicant hereby with full knowledge and understanding of its rights under Sections 120.60(1), 403.0872, and 403.0876, Florida Statutes, waives the right under Sections 120.60(1), 403.0872, and 403.0876, Florida Statues, to have the application approved or denied by the State of Florida Department of Environmental Protection within the 90-day time period prescribed in Sections 120.60(1), and 403.0876, Florida Statutes.

In specific, this letter waives the 30-day and 60-day completeness reviews of the information provided to the Department on January 2, 2001 and subsequent correspondence. This waiver shall in no way limit the Department's ability to request information prior to the expiration of this waiver. This waiver shall expire on 011/30/01, at which time all processing time clocks will resume.

Said waiver is made freely and voluntarily by the applicant, is in its self interest and without any pressure or coercion by anyone employed by the State of Florida Department of Environmental Protection.

This waiver shall expire on the 30<sup>th</sup> day of November, 2001.

The undersigned is authorized to make this waiver on behalf of the applicant.

Signature David A. Buff Date 10/23/01

By: David A. Buff, P.E.

State of Florida  
County of Alachua

Sworn to (or affirmed) and subscribed before me this 26<sup>th</sup> day of June 2001, by David Buff Who is personally know or has produced identification.

Sealed by Notary Public

Trudy L. Aust



Trudy L. Aust  
Commission # CC 968118  
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August 14, 2001

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0037584

AUG 15 2001

Florida Department of Environmental Protection  
Bureau of Air Regulation  
2600 Blair Stone Road  
Tallahassee, FL 32399-2400

BUREAU OF AIR REGULATION

Attention: Mr. Jeff Koerner, P.E.

RE: OKEELANTA POWER COGENERATION FACILITY  
ARMS FACILITY ID NO. 0990332  
PROJECT NO. 0990332-014-AC/PSD-FL-196M  
APPLICATION TO MODIFY CO AND SO<sub>2</sub> EMISSIONS STANDARDS  
REQUEST FOR ADDITIONAL INFORMATION NO. 2

Dear Mr. Koerner:

Okeelanta Power Limited Partnership (OkPLP) has received the Department's letter dated July 11, 2001, requesting additional information in regards to revising the CO and SO<sub>2</sub> emissions standards for the three cogeneration boilers. A response to each of the Department's questions is provided below, in the same order as they appear in the Department's letter.

**1. CO, NO<sub>x</sub>, and SO<sub>2</sub> Data**

A brief summary of the methodology for determining lb/MMBtu by the CEMS data acquisition system (DAS) is provided below.

The DAS calculates a combined a carbon-based F-factor (F<sub>c</sub> factor) by determining the fraction of heat input due to each type fuel and using the F<sub>c</sub> factor for each type fuel. F<sub>c</sub> for biomass is 1,850 scf/MMBtu.

Heat input due to each type fuel is determined by fuel flow rates. Biomass fuel flow to the boilers is controlled by the biomass feeder speeds. The feeder speeds correlate to the volume of biomass entering the boilers. Feeder speed is read directly into the DAS, which is programmed to convert the speed to volume of material. A constant is set in the DAS related to the percentage of wood versus bagasse being fed to the boilers. This constant is changed depending on the time of year, i.e., crop season, off-season, etc. With this constant, the DAS calculates the lb/hr of wood and bagasse entering the boilers. Fuel oil input to each boiler is also measured by fuel oil flow meters.

Constants are also in the DAS related to heating value of wood, bagasse and fuel oil. The DAS uses these constants to calculate the heat input due to each fuel type, and then the combined F<sub>c</sub> factor.

Next, the DAS uses the combined fuel factor (F<sub>c</sub>) to convert ppm measured in the flue gas stream to lb/MMBtu, based on the following equation:

$$E \text{ (lb/MMBtu)} = (\text{ppm} * F_c * 100 * K) / \text{Wet CO}_2\%$$

where, ppm is wet pollutant concentration from CEMS

$F_c$  is combined carbon fuel factor

K is conversion factor depending on pollutant of interest

Wet CO<sub>2</sub>% = percentage of CO<sub>2</sub> in the gas stream, wet basis.

Combustion Systems, Inc., conducted a boiler efficiency study at Okeelanta Power in July 1997. The results of this study are as follows:

- Boiler A had a boiler efficiency of 59.81% to 65.47% when co-firing bagasse and wood with the wood percentages ranging from 14.4% to 48.2%.
- Boiler B had a boiler efficiency of 64.24% to 70.92% when co-firing bagasse and wood with the wood percentages ranging from 23.4% to 68.8%.
- Boiler C had a boiler efficiency of 72.45% to 72.93% when firing 100% wood.

The study states that, "Bagasse and wood co-firing resulted in significantly lower boiler efficiencies in Boilers A and Boiler B at Okeelanta, due to the high moisture content of the bagasse".

## **2. Elevated CO Emissions**

The CO excursions of the 30-day rolling average are listed in the tables in Appendix A of our response dated June 8, 2001. The dates of the excursions are stated at the top of each table, as follows:

- Boiler A excursions: 11/10/99 through 11/30/99. Each day was an excursion of the 30-day rolling average, for a total of 19 excursions.
- Boiler C excursions: 10/30/99 through 11/26/99. Each day was an excursion of the 30-day rolling average, for a total of 28 excursions.

The 30-day rolling average standard was approved on June 22, 1999. Therefore, the units have operated under this standard for 24 months. This indicates that Boiler A was out of compliance with the CO standard for 2.8% of this time, and Boiler C was out of compliance with the CO standard for 3.8% of this time.

OkPLP always employs "good combustion practices" in operating the boilers. To do otherwise would be costly in terms of not only wasted fuel, but also higher maintenance costs associated with boiler operation. The boiler operators are trained in proper boiler operation and good combustion practices.

Bagasse fuel has higher moisture content (50-55%) compared to wood (35-50%). However, bagasse is of smaller particle size with more surface area, therefore the moisture in bagasse can be driven off faster as compared to larger pieces of wood. Also, greater relative amounts of wood are burned during the summer months, when rainfall is the greatest.

Review of the periods of CO excursions indicates that the excursions for both Boilers A and C began shortly after the start of the crop season. Wood was primarily burned prior to these periods, with bagasse being primarily burned during the period of actual excursions. This indicates that average CO emissions were already rising prior to the crop season starting. This is also demonstrated from Figure 2-1 of the original application, which shows high average CO levels occurring for Boiler A in September 1999, prior to the start of the crop season and prior to the excursions. A similar trend is shown for Boiler C (Figure 2-3 of application) for October 1999, just

prior to the excursions. These data indicate that burning bagasse, with its high moisture content, would not be a solution to CO excursions.

OkPLP is a unique operation in that it handles very large volumes of biomass. Approximately 1.4 million tons of biomass is burned annually. Large storage areas for both wood and bagasse are maintained to insure an adequate fuel supply. Providing a 3-day storage area for dry biomass would be highly impractical. OkPLP does not store biomass fuel for very long, and operates on a "first in, first out" basis, since the Btu content of biomass fuel degrades over time. This also minimizes exposure of the fuel to rainfall. The facility has two biomass fuel reclaim areas: one south of the plant to reclaim bagasse, and one east of the plant to reclaim wood. Mobile equipment is always active in the reclaim areas. Constructing a building or covered structure of any sort would interfere with the movement of the mobile equipment and the ability to store and handle biomass fuel. Any covered or confined storage area, in addition to being impractical, would be highly costly.

Natural gas was permitted primarily to replace fuel oil as a startup and supplemental fuel. At times, fuel oil is burned to enhance the combustion process. However, fuel oil or natural gas is very expensive compared to biomass fuel, and the facility could not economically operate for very long if required to burn fossil fuels on an ongoing basis.

OkPLP will continue to implement combustion controls and good combustion practices to reduce CO emissions. However, this does not guarantee in itself that no further excursions of the CO standard will occur. OkPLP desires to be in compliance with its emission limiting standards at all times. OkPLP has made best efforts to combust the fuel as efficiently as possible. However, when extreme events arise, CO emissions can be variable. Due to the variability of CO emissions from biomass burning, and the documented effect of fuel moisture, OkPLP is requesting the 12-month rolling average for CO.

OkPLP did not notify the Department of the replacement of the wood feeders. The old wood feeders were of inefficient design, plugged frequently, and allowed cold air into the boilers. The hourly fuel feed rate or maximum heat input rate did not change as a result of the new rotary feeders.

### **3. Elevated SO<sub>2</sub> Emissions**

The SO<sub>2</sub> excursions of the 30-day rolling average are listed in the tables in Appendix A of our response dated June 8, 2001. The dates of the excursions are stated at the top of each table, as follows:

- Boiler A excursions: 9/11/00, 10/03/00 and 10/04/00. Each day was an excursion of the 30-day rolling average, for a total of 3 excursions.
- Boiler B excursions: 6/23/00 through 7/17/00. Each day was an excursion of the 30-day rolling average, for a total of 23 excursions.
- Boiler C excursions: 6/14/00 through 7/12/00. Each day was an excursion of the 30-day rolling average, for a total of 27 excursions.

There have not been any further excursions since these dates. The current 30-day rolling average standards of 0.05 lb/MMBtu for wood and 0.02 lb/MMBtu for bagasse were approved on 10/24/97. Therefore, the units have operated under this standard for 45 months.

Okeelanta began to collect and analyze additional fuel samples for sulfur when the SO<sub>2</sub> standard was first exceeded. It was determined that the sulfur content of the fuel was higher than the original 1992 application had predicted. Therefore, OkPLP applied for a permit revision as allowed by the

air permit, i.e., "Subject to revision after testing". The facility has no SO<sub>2</sub> control equipment so there was little the plant could do to prevent an exceedance other than adhere to "Good Operating Practices."

OkPLP investigated these excursions in order to attempt to identify the cause. These data were presented in the original application for the CO/SO<sub>2</sub> revision request, which analyzed the possibility that fuel sulfur content had increased or that the mechanical collector additions had some effect on SO<sub>2</sub> emissions. The data were found to be inconclusive regarding the mechanical collectors, but indicated that fuel sulfur content may have increased. OkPLP is continuing with more frequent fuel sulfur analysis in an attempt to identify the cause. No further excursions have taken place since July 2000.

A time plot and listing of historic fuel sulfur analysis data are presented in Appendix A. Although not enough historic bagasse data are available to reach any conclusions regarding sulfur content, the data for wood show higher sulfur contents (in terms of potential lb/MMBtu SO<sub>2</sub> emissions) occurring in early 2001. The data indicate an average increase in fuel sulfur content of wood.

Since the fuel sulfur content is beyond the control of OkPLP, and the sulfur content of wood can vary considerably depending on the source, and the exact cause of the excursions is not known, it is possible that further excursions may occur. Therefore, OkPLP is requesting the higher SO<sub>2</sub> limits for biomass. It is stressed once again that Condition 20 of the current air permit states that the SO<sub>2</sub> emissions limits are subject to revision pursuant to facility testing.

The carbon injection system consists of three carbon hoppers with of total volume of 334 cu. ft. each. The blowers, hoppers, piping and injection points were designed to feed and inject carbon. Chemco, the manufacturer, states that lime is more difficult to inject with this system due to the physical consistency. The system would have to be re-engineered, i.e., investigate blower sizing, injection points, plant chemistry, piping arrangements and storage requirements (hopper size) in order to inject lime. This re-engineering would be expensive.

It is noted that, even at the requested SO<sub>2</sub> emission rate of 0.10 lb/MMBtu as a 30-day rolling average, SO<sub>2</sub> emissions from the OkPLP facility are much less than a comparable coal-fired or low sulfur fuel-fired power plant.

#### **4. CO Modeling Analysis**

The Pratt & Whitney new rocket testing facility was not permitted at the time the CO modeling was performed. In fact, the final permit has still not been issued, so the final approved allowable emissions are not known. The draft permit stated 1,000 TPY maximum CO emissions. Based on the modeling inventory submitted previously, this facility would not screen out by the North Carolina technique. Therefore, the CO modeling has been revised to include this source.

Okeelanta Boiler 16 was also added to the revised modeling inventory and included in the revised modeling analysis. The final permit for Boiler 16 has not been issued. The potential emission rates and stack and operating parameters are based on the pending permit. Please find revised modeling tables attached in Appendix B.

The modeling files were posted on Golder's FTP site in early June, as stated on page 4 of Appendix C of the June 8, 2001 submittal. The revised model runs will also be posted there.



### **5. SO<sub>2</sub> Modeling Analysis**

The requested change was revised in the June 8, 2001 submittal to remove coal as an authorized fuel. On pages 3 and 6 of the June 8 letter and in Table 2-5 attached, the maximum annual SO<sub>2</sub> emissions were stated to be 575 TPY based upon biomass firing and the requested annual limit of 0.10 lb/MMBtu. The permit application forms reflecting the removal of coal were also attached to the letter.

Current actual emissions and the revised future potential SO<sub>2</sub> emissions were presented in Table 3-1 of the June 8 submittal. This showed that the increase in SO<sub>2</sub> emissions was 441.8 TPY.

The Department's January 25, 2001 comment letter clearly stated in comment #5 to compare the SO<sub>2</sub> emission rates used in the original PSD air quality analysis versus the expected maximum future SO<sub>2</sub> emission rates. The modeling was to be revised only if the future maximum emission rates were higher than what was used in the original analysis. This comparison showed much lower SO<sub>2</sub> emissions in the future compared to those originally modeled, both on a short-term and an annual basis.

### **6. Coal Firing**

No response needed.

### **7. Other Requests**

#### ***a. Stack testing for CO, NO<sub>x</sub>, SO<sub>2</sub>, visible emissions, fluorides, beryllium, arsenic, chromium and copper***

Maximum future fluoride emissions:

With coal firing: 12.94 TPY

Without coal firing: 4.03 TPY

Maximum future beryllium emissions:

With coal firing: 0.0032 TPY

Without coal firing: 0.0016 TPY

A revised PSD applicability for these two pollutants is attached (Appendix C). PSD review is not triggered for beryllium. Note that although the revised PSD applicability analysis for fluorides shows the emission increase to be just barely over the significant emission rate of 3.0 TPY, the future potential emissions are based on the highest single stack test result for fluorides for bagasse or wood. This is due to the need to use a highly conservative future emission factor (in the event that the factor becomes a limit). Therefore, potential fluoride emissions are likely greatly overestimated.

Also note that an emission factor for beryllium due to wood firing has been assigned in the tables. All stack tests performed to date on bagasse have shown nondetectable levels of beryllium. Of all the stack tests performed on wood, only one test on each of Units B and C have shown any detectable levels. Therefore, the potential future emissions (without coal firing) are likely greatly overestimated.

To provide a more realistic estimate of the increase in emissions for fluorides and beryllium, the maximum future emissions were estimated using the same emission factors as for the baseline emissions. These future actual emissions and the PSD applicability based on this methodology are

shown in Appendix C, Tables C-1 and C-2. As shown, PSD review is not triggered based on expected future emissions.

A summary of the stack test results for arsenic, chromium and copper are also included in Appendix C, Tables C-3 and C-4.

**b. Emission limits for lead, mercury, fluorides and beryllium**

The revised PSD applicability for lead and mercury were included in Tables 3-1 and 3-2 of the June 8 submittal. They are provided again as revised Tables 3-1 and 3-2. The analysis shows that PSD review is triggered for lead but not for mercury.

As for fluorides and beryllium, potential future emissions are overestimated due to the need to use a highly conservative future emission factor (in the event that the factor becomes a limit). To provide a more realistic estimate of the increase in emissions for lead and mercury, the maximum future emissions were also estimated using the same emission factors as for the baseline emissions. These future actual emissions and the PSD applicability based on this methodology are shown in Appendix C, Tables C-1 and C-2. As shown, PSD review is not triggered based on expected future emissions.

**c. Eliminate the requirement for a carbon injection system**

No response necessary.

**d. Bubbling of lead and mercury limits**

The request is simply to be allowed to average the test results from all three boilers to demonstrate compliance with the lb/MMBtu limits for lead and mercury. This is a compliance demonstration issue. An individual limit would be retained for each boiler.

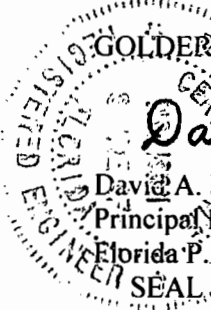
Thank you for your consideration of this information and requests. Please call if there are any questions.

Sincerely,

GOLDER ASSOCIATES INC.

*David A. Buff*

David A. Buff, P.E., Q.E.P.  
Principal Engineer  
Florida P.E. #19011



DB/jkw

cc: Gus Cepero  
James Meriwether  
David Dee  
Bill Tarr  
Fawn Howard  
*C. Halladay*

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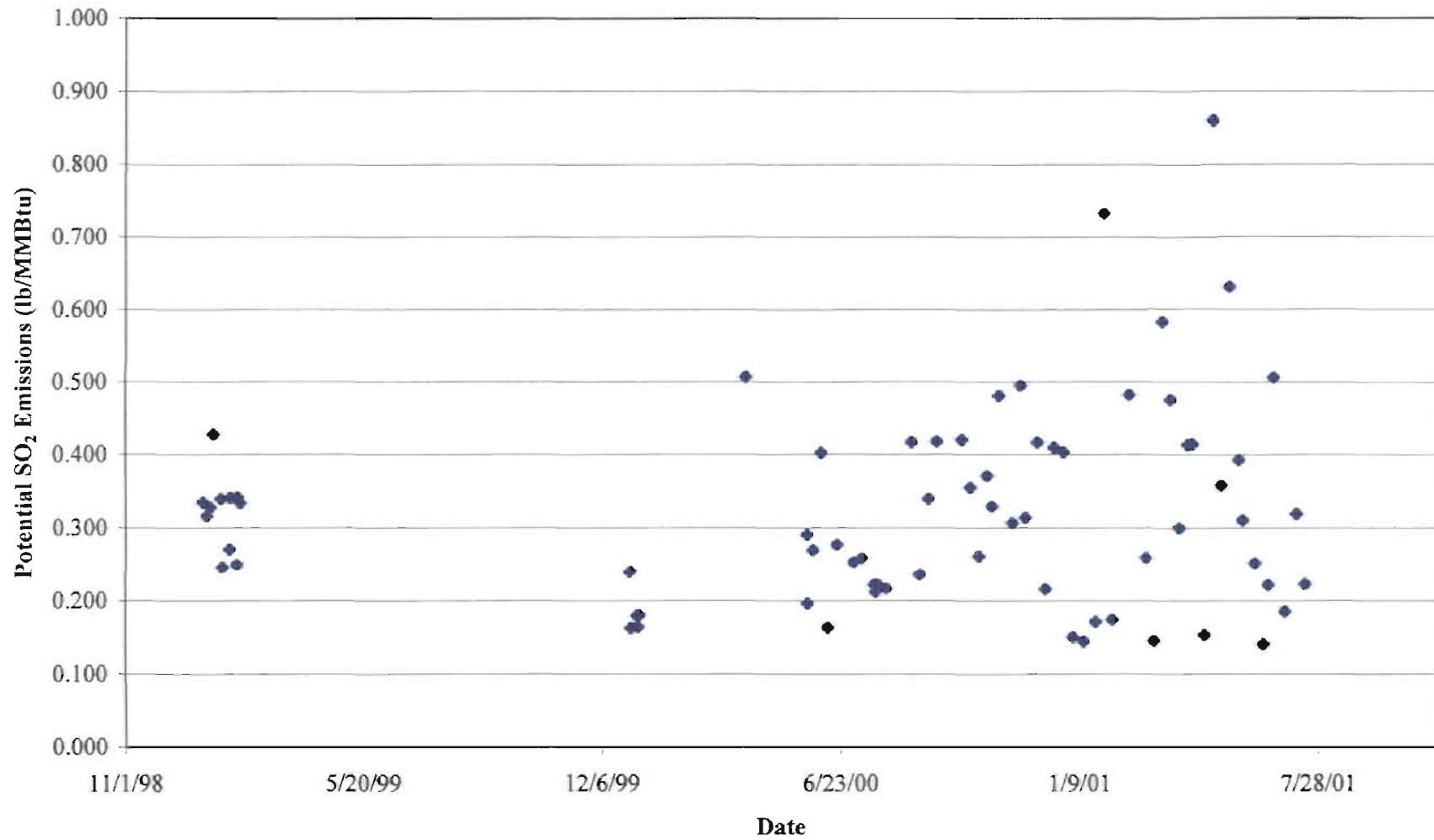
*R. Blackburn, SD*  
*D. Graziani, PCBHD*  
*B. Worley, EPA*  
*Q. Barnard, NPS*

Golder Associates

**APPENDIX A**

**BIOMASS FUEL SULFUR ANALYSIS DATA**

**Figure A-1. Potential SO<sub>2</sub> Emissions From Wood Fuel (Revised 8/6/01)**  
**1/5/99 - 7/16/01**



**Figure A-2. Potential SO<sub>2</sub> Emissions From Bagasse Fuel (Revised 8/6/01)  
12/28/98-7/16/01**

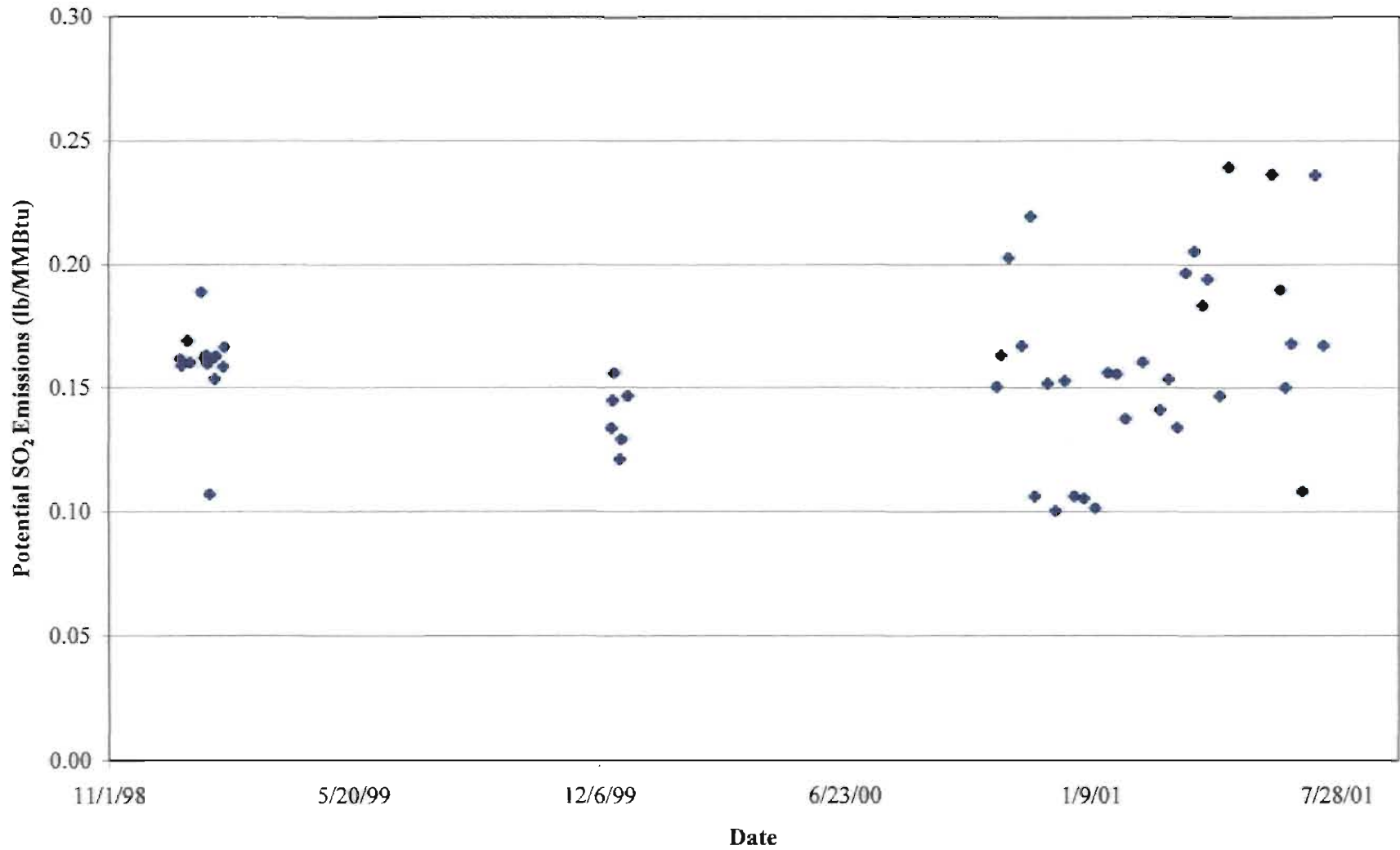


Table A-1. Summary of Wood Fuel Analyses, Okeelanta Power L.P. (Revised 8/6/01)

| Sample Date | Sulfur (%) | Heat Content (Btu/lb) | Potential SO <sub>2</sub> Emissions (lb/MMBtu) | Daily Average SO <sub>2</sub> (lb/MMBtu) |
|-------------|------------|-----------------------|--|--|
| 1/5/99      | 0.09       | 4,972                 | 0.36   |  |
| 1/5/99      | 0.08       | 4,769                 | 0.34   |  |
| 1/5/99      | 0.07       | 4,583                 | 0.31   | 0.33                                     |
| 1/8/99      | 0.07       | 5,359                 | 0.26   |  |
| 1/8/99      | 0.10       | 4,804                 | 0.42   |  |
| 1/8/99      | 0.07       | 5,172                 | 0.27   | 0.32                                     |
| 1/11/99     | 0.05       | 5,429                 | 0.18   |  |
| 1/11/99     | 0.09       | 4,019                 | 0.45   |  |
| 1/11/99     | 0.07       | 3,997                 | 0.35   | 0.33                                     |
| 1/14/99     | 0.10       | 5,172                 | 0.39   |  |
| 1/14/99     | 0.11       | 5,255                 | 0.42   |  |
| 1/14/99     | 0.11       | 4,634                 | 0.47   | 0.43                                     |
| 1/20/99     | 0.10       | 4,907                 | 0.41   |  |
| 1/20/99     | 0.08       | 5,260                 | 0.30   |  |
| 1/20/99     | 0.08       | 5,220                 | 0.31   | 0.34                                     |
| 1/21/99     | 0.07       | 5,229                 | 0.27   |  |
| 1/21/99     | 0.07       | 5,298                 | 0.26   |  |
| 1/21/99     | 0.05       | 4,894                 | 0.20   | 0.25                                     |
| 1/27/99     | 0.08       | 5,920                 | 0.27   | 0.27                                     |
| 1/28/99     | 0.06       | 3,516                 | 0.34   | 0.34                                     |
| 2/2/99      | 0.06       | 4,394                 | 0.27   |  |
| 2/2/99      | 0.06       | 5,197                 | 0.23   |  |
| 2/2/99      | 0.06       | 4,927                 | 0.24   | 0.25                                     |
| 2/3/99      | 0.08       | 4,686                 | 0.34   | 0.34                                     |
| 2/5/99      | 0.07       | 4,509                 | 0.31   |  |
| 2/5/99      | 0.08       | 4,582                 | 0.35   | 0.33                                     |
| 12/29/99    | 0.05       | 4,850                 | 0.21   |  |
| 12/29/99    | 0.04       | 4,949                 | 0.16   | 0.24                                     |
| 12/30/99    | 0.04       | 5,073                 | 0.16   |  |
| 12/30/99    | 0.04       | 4,759                 | 0.17   | 0.16                                     |
| 1/4/00      | 0.04       | 4,845                 | 0.17   |  |
| 1/4/00      | 0.05       | 4,835                 | 0.21   |  |
| 1/4/00      | 0.04       | 4,833                 | 0.17   | 0.18                                     |
| 1/5/00      | 0.04       | 5,030                 | 0.16   |  |
| 1/5/00      | 0.04       | 4,739                 | 0.17   | 0.16                                     |
| 1/6/00      | 0.05       | 5,031                 | 0.20   |  |
| 1/6/00      | 0.04       | 4,919                 | 0.16   |  |
| 1/6/00      | 0.04       | 5,029                 | 0.16   |  |
| 1/6/00      | 0.05       | 5,029                 | 0.20   | 0.18                                     |

Table A-1. Summary of Wood Fuel Analyses, Okeelanta Power L.P. (Revised 8/6/01)

| Sample Date | Sulfur (%) | Heat Content (Btu/lb) | Potential SO <sub>2</sub> Emissions (lb/MMBtu) | Daily Average SO <sub>2</sub> (lb/MMBtu) |
|-------------|------------|-----------------------|--|--|
| 4/4/00      | 0.03       | 4,417                 | 0.14   |  |
| 4/4/00      | 0.16       | 5,298                 | 0.60   |  |
| 4/4/00      | 0.04       | 4,235                 | 0.19   |  |
| 4/4/00      | 0.14       | 5,866                 | 0.48   |  |
| 4/4/00      | 0.04       | 4,606                 | 0.17   |  |
| 4/4/00      | 0.22       | 5,216                 | 0.84   |  |
| 4/4/00      | 0.07       | 4,190                 | 0.33   |  |
| 4/4/00      | 0.15       | 5,744                 | 0.52   |  |
| 4/4/00      | 0.27       | 4,571                 | 1.18   |  |
| 4/4/00      | 0.23       | 4,835                 | 0.95   |  |
| 4/4/00      | 0.15       | 5,182                 | 0.58   |  |
| 4/4/00      | 0.02       | 4,929                 | 0.08   | 0.51                                     |
| 5/25/00     | 0.08       | 5,508                 | 0.29   | 0.29                                     |
| 5/26/00     | 0.04       | 4,089                 | 0.20   | 0.20                                     |
| 5/30/00     | 0.08       | 4,346                 | 0.37   |  |
| 5/30/00     | 0.04       | 4,707                 | 0.17   | 0.27                                     |
| 6/6/00      | 0.05       | 4,831                 | 0.21   |  |
| 6/6/00      | 0.15       | 5,024                 | 0.60   | 0.40                                     |
| 6/12/00     | 0.04       | 4,882                 | 0.16   |  |
| 6/12/00     | 0.03       | 3,869                 | 0.16   |  |
| 6/12/00     | 0.04       | 4,707                 | 0.17   | 0.16                                     |
| 6/19/00     | 0.09       | 5,091                 | 0.35   |  |
| 6/19/00     | 0.04       | 4,000                 | 0.20   | 0.28                                     |
| 7/3/00      | 0.08       | 4,638                 | 0.34   |  |
| 7/3/00      | 0.03       | 3,755                 | 0.16   | 0.25                                     |
| 7/10/00     | 0.05       | 4,060                 | 0.25   |  |
| 7/10/00     | 0.07       | 4,900                 | 0.29   |  |
| 7/10/00     | 0.04       | 3,592                 | 0.22   |  |
| 7/10/00     | 0.09       | 5,511                 | 0.33   |  |
| 7/10/00     | 0.06       | 5,720                 | 0.21   | 0.26                                     |
| 7/21/00     | 0.05       | 4,899                 | 0.20   |  |
| 7/21/00     | 0.03       | 4,024                 | 0.15   |  |
| 7/21/00     | 0.05       | 4,810                 | 0.21   |  |
| 7/21/00     | 0.08       | 4,911                 | 0.33   |  |
| 7/21/00     | 0.06       | 5,447                 | 0.22   | 0.22                                     |
| 7/22/00     | 0.05       | 4,497                 | 0.22   |  |
| 7/22/00     | 0.04       | 5,008                 | 0.16   |  |
| 7/22/00     | 0.06       | 5,002                 | 0.24   |  |
| 7/22/00     | 0.06       | 5,364                 | 0.22   | 0.21                                     |

Table A-1. Summary of Wood Fuel Analyses, Okeelanta Power L.P. (Revised 8/6/01)

| Sample Date | Sulfur (%) | Heat Content (Btu/lb) | Potential SO <sub>2</sub> Emissions (lb/MMBtu) | Daily Average SO <sub>2</sub> (lb/MMBtu) |
|-------------|------------|-----------------------|--|--|
| 7/24/00     | 0.04       | 4,585                 | 0.17   |  |
| 7/24/00     | 0.04       | 4,426                 | 0.18   |  |
| 7/24/00     | 0.03       | 3,366                 | 0.18   |  |
| 7/24/00     | 0.09       | 4,320                 | 0.42   |  |
| 7/24/00     | 0.07       | 4,841                 | 0.29   |  |
| 7/24/00     | 0.03       | 3,455                 | 0.17   |  |
| 7/24/00     | 0.02       | 2,917                 | 0.14   | 0.22                                     |
| 7/31/00     | 0.07       | 4,717                 | 0.30   |  |
| 7/31/00     | 0.02       | 2,957                 | 0.14   | 0.22                                     |
| 8/21/00     | 0.14       | 5,135                 | 0.55   |  |
| 8/21/00     | 0.06       | 4,177                 | 0.29   | 0.42                                     |
| 8/28/00     | 0.07       | 4,796                 | 0.29   |  |
| 8/28/00     | 0.03       | 3,370                 | 0.18   | 0.23                                     |
| 9/4/00      | 0.12       | 4,371                 | 0.55   |  |
| 9/4/00      | 0.02       | 3,094                 | 0.13   | 0.34                                     |
| 9/11/00     | 0.13       | 4,027                 | 0.65   |  |
| 9/11/00     | 0.03       | 3,183                 | 0.19   | 0.42                                     |
| 10/2/00     | 0.07       | 5,583                 | 0.25   |  |
| 10/2/00     | 0.12       | 4,081                 | 0.59   | 0.42                                     |
| 10/9/00     | 0.08       | 4,657                 | 0.34   |  |
| 10/9/00     | 0.06       | 3,279                 | 0.37   | 0.35                                     |
| 10/16/00    | 0.09       | 4,854                 | 0.37   |  |
| 10/16/00    | 0.03       | 3,991                 | 0.15   | 0.26                                     |
| 10/23/00    | 0.09       | 4,854                 | 0.37   | 0.37                                     |
| 10/27/00    | 0.08       | 4,863                 | 0.33   | 0.33                                     |
| 11/2/00     | 0.13       | 5,412                 | 0.48   | 0.48                                     |
| 11/13/00    | 0.08       | 5,223                 | 0.31   | 0.31                                     |
| 11/20/00    | 0.13       | 5,255                 | 0.49   | 0.49                                     |
| 11/24/00    | 0.08       | 5,102                 | 0.31   | 0.31                                     |
| 12/4/00     | 0.11       | 5,286                 | 0.42   | 0.42                                     |
| 12/11/00    | 0.06       | 5,567                 | 0.22   | 0.22                                     |
| 12/18/00    | 0.10       | 4,890                 | 0.41   | 0.41                                     |
| 12/26/00    | 0.10       | 4,965                 | 0.40   | 0.40                                     |
| 1/3/01      | 0.04       | 5,333                 | 0.15   | 0.15                                     |
| 1/12/01     | 0.04       | 5,563                 | 0.14   |  |
| 1/12/01     | 0.04       | 5,544                 | 0.14   | 0.14                                     |
| 1/22/01     | 0.05       | 5,846                 | 0.17   | 0.17                                     |
| 1/29/01     | 0.20       | 5,465                 | 0.73   | 0.73                                     |
| 2/5/01      | 0.06       | 6,900                 | 0.17   | 0.17                                     |



Table A-1. Summary of Wood Fuel Analyses, Okeelanta Power L.P. (Revised 8/6/01)

| Sample Date | Sulfur (%) | Heat Content (Btu/lb) | Potential SO <sub>2</sub> Emissions (lb/MMBtu) | Daily Average SO <sub>2</sub> (lb/MMBtu) |
|-------------|------------|-----------------------|--|--|
| 2/19/01     | 0.13       | 5,385                 | 0.48   |  |
| 2/19/01     | 0.15       | 6,248                 | 0.48   | 0.48                                     |
| 3/5/01      | 0.10       | 5,445                 | 0.37   |  |
| 3/5/01      | 0.04       | 5,349                 | 0.15   | 0.26                                     |
| 3/12/01     | 0.04       | 5,519                 | 0.14   | 0.14                                     |
| 3/19/01     | 0.15       | 5,158                 | 0.58   | 0.58                                     |
| 3/26/01     | 0.12       | 5,054                 | 0.47   | 0.47                                     |
| 4/2/01      | 0.09       | 6,011                 | 0.30   | 0.30                                     |
| 4/9/01      | 0.11       | 5,329                 | 0.41   | 0.41                                     |
| 4/13/01     | 0.11       | 5,316                 | 0.41   | 0.41                                     |
| 4/23/01     | 0.05       | 6,536                 | 0.15   | 0.15                                     |
| 4/30/01     | 0.25       | 5,814                 | 0.86   | 0.86                                     |
| 5/7/01      | 0.10       | 5,593                 | 0.36   | 0.36                                     |
| 5/14/01     | 0.16       | 5,076                 | 0.63   | 0.63                                     |
| 5/22/01     | 0.10       | 5,093                 | 0.39   | 0.39                                     |
| 5/25/01     | 0.09       | 5,800                 | 0.31   | 0.31                                     |
| 6/4/01      | 0.06       | 4,781                 | 0.25   | 0.25                                     |
| 6/11/01     | 0.03       | 4,285                 | 0.14   | 0.14                                     |
| 6/15/01     | 0.06       | 5,431                 | 0.22   | 0.22                                     |
| 6/20/01     | 0.12       | 4,744                 | 0.51   | 0.51                                     |
| 6/29/01     | 0.05       | 5,409                 | 0.18   | 0.18                                     |
| 7/9/01      | 0.08       | 5,016                 | 0.32   | 0.32                                     |
| 7/16/01     | 0.06       | 5,403                 | 0.22   | 0.22                                     |

Table A-2. Summary of Bagasse Fuel Analyses, Okeelanta Power L.P. (Revised 8/6/01)

| Sample Date | Sulfur (%) | Heat Content (Btu/lb) | Potential SO <sub>2</sub> Emissions (lb/MMBtu) | Daily Average SO <sub>2</sub> (lb/MMBtu) |
|-------------|------------|-----------------------|--|--|
| 12/29/98    | 0.03       | 3,714                 | 0.16   |  |
| 12/29/98    | 0.03       | 3,715                 | 0.16   | 0.16                                     |
| 12/30/98    | 0.03       | 3,780                 | 0.16   | 0.16                                     |
| 1/4/99      | 0.03       | 3,607                 | 0.17   |  |
| 1/4/99      | 0.03       | 3,619                 | 0.17   |  |
| 1/4/99      | 0.03       | 3,441                 | 0.17   | 0.17                                     |
| 1/6/99      | 0.03       | 3,741                 | 0.16   |  |
| 1/6/99      | 0.03       | 3,716                 | 0.16   |  |
| 1/6/99      | 0.03       | 3,790                 | 0.16   | 0.16                                     |
| 1/15/99     | 0.04       | 3,737                 | 0.21   | 0.19                                     |
| 1/15/99     | 0.03       | 3,680                 | 0.16   |  |
| 1/18/99     | 0.03       | 3,779                 | 0.16   |  |
| 1/18/99     | 0.03       | 3,621                 | 0.17   |  |
| 1/18/99     | 0.03       | 3,725                 | 0.16   | 0.16                                     |
| 1/19/99     | 0.03       | 3,682                 | 0.16   |  |
| 1/19/99     | 0.03       | 3,677                 | 0.16   | 0.16                                     |
| 1/20/99     | 0.03       | 3,762                 | 0.16   | 0.16                                     |
| 1/22/99     | 0.03       | 3,734                 | 0.16   | 0.16                                     |
| 1/22/99     | 0.02       | 3,712                 | 0.11   |  |
| 1/22/99     | 0.02       | 3,769                 | 0.11   | 0.11                                     |
| 1/26/99     | 0.02       | 2,953                 | 0.14   |  |
| 1/26/99     | 0.03       | 3,740                 | 0.16   |  |
| 1/26/99     | 0.03       | 3,656                 | 0.16   | 0.15                                     |
| 1/27/99     | 0.03       | 3,689                 | 0.16   | 0.16                                     |
| 2/2/99      | 0.03       | 3,790                 | 0.16   | 0.16                                     |
| 2/3/99      | 0.03       | 3,605                 | 0.17   | 0.17                                     |
| 12/15/99    | 0.03       | 3,542                 | 0.17   |  |
| 12/15/99    | 0.02       | 3,234                 | 0.12   |  |
| 12/15/99    | 0.02       | 3,704                 | 0.11   | 0.13                                     |
| 12/16/99    | 0.03       | 3,451                 | 0.17   |  |
| 12/16/99    | 0.03       | 3,490                 | 0.17   |  |
| 12/16/99    | 0.02       | 3,634                 | 0.11   |  |
| 12/16/99    | 0.02       | 3,254                 | 0.12   | 0.14                                     |
| 12/17/99    | 0.03       | 3,298                 | 0.18   |  |
| 12/17/99    | 0.03       | 3,579                 | 0.17   |  |
| 12/17/99    | 0.02       | 3,401                 | 0.12   | 0.16                                     |
| 12/22/99    | 0.02       | 3,495                 | 0.11   |  |
| 12/22/99    | 0.03       | 3,889                 | 0.15   |  |
| 12/22/99    | 0.02       | 4,229                 | 0.09   | 0.12                                     |
| 12/23/99    | 0.02       | 3,772                 | 0.11   |  |
| 12/23/99    | 0.02       | 3,892                 | 0.10   |  |
| 12/23/99    | 0.03       | 3,359                 | 0.18   | 0.13                                     |
| 12/28/99    | 0.03       | 3,626                 | 0.17   |  |
| 12/28/99    | 0.03       | 3,594                 | 0.17   |  |
| 12/28/99    | 0.02       | 3,731                 | 0.11   | 0.15                                     |

Table A-2. Summary of Bagasse Fuel Analyses, Okeelanta Power L.P. (Revised 8/6/01)

| Sample Date | Sulfur (%) | Heat Content (Btu/lb) | Potential SO <sub>2</sub> Emissions (lb/MMBtu) | Daily Average SO <sub>2</sub> (lb/MMBtu) |
|-------------|------------|-----------------------|--|--|
| 10/23/00    | 0.03       | 3,991                 | 0.15   | 0.15                                     |
| 10/27/00    | 0.03       | 3,680                 | 0.16   | 0.16                                     |
| 11/2/00     | 0.05       | 4,934                 | 0.20   | 0.20                                     |
| 11/13/00    | 0.03       | 3,592                 | 0.17   | 0.17                                     |
| 11/20/00    | 0.04       | 3,647                 | 0.22   | 0.22                                     |
| 11/24/00    | 0.02       | 3,769                 | 0.11   | 0.11                                     |
| 12/4/00     | 0.03       | 3,954                 | 0.15   | 0.15                                     |
| 12/11/00    | 0.02       | 3,993                 | 0.10   | 0.10                                     |
| 12/18/00    | 0.03       | 3,928                 | 0.15   | 0.15                                     |
| 12/26/00    | 0.02       | 3,765                 | 0.11   | 0.11                                     |
| 1/3/01      | 0.02       | 3,802                 | 0.11   | 0.11                                     |
| 1/12/01     | 0.02       | 4,062                 | 0.10   |  |
| 1/12/01     | 0.02       | 3,837                 | 0.10   | 0.10                                     |
| 1/22/01     | 0.03       | 3,846                 | 0.16   | 0.16                                     |
| 1/29/01     | 0.03       | 3,858                 | 0.16   | 0.16                                     |
| 2/5/01      | 0.03       | 4,364                 | 0.14   | 0.14                                     |
| 2/19/01     | 0.03       | 3,793                 | 0.16   |  |
| 2/19/01     | 0.03       | 3,693                 | 0.16   | 0.16                                     |
| 3/5/01      | 0.03       | 4,283                 | 0.14   |  |
| 3/5/01      | 0.03       | 4,226                 | 0.14   | 0.14                                     |
| 3/12/01     | 0.03       | 3,912                 | 0.15   | 0.15                                     |
| 3/19/01     | 0.03       | 4,476                 | 0.13   | 0.13                                     |
| 3/26/01     | 0.04       | 4,070                 | 0.20   | 0.20                                     |
| 4/2/01      | 0.04       | 3,897                 | 0.21   | 0.21                                     |
| 4/9/01      | 0.04       | 4,366                 | 0.18   | 0.18                                     |
| 4/13/01     | 0.04       | 4,124                 | 0.19   | 0.19                                     |
| 4/23/01     | 0.03       | 4,090                 | 0.15   | 0.15                                     |
| 4/30/01     | 0.05       | 4,183                 | 0.24   | 0.24                                     |
| 6/4/01      | 0.05       | 4,231                 | 0.24   | 0.24                                     |
| 6/11/01     | 0.03       | 3,166                 | 0.19   | 0.19                                     |
| 6/15/01     | 0.02       | 2,666                 | 0.15   | 0.15                                     |
| 6/20/01     | 0.03       | 3,575                 | 0.17   | 0.17                                     |
| 6/29/01     | 0.02       | 3,703                 | 0.11   | 0.11                                     |
| 7/9/01      | 0.04       | 3,390                 | 0.24   | 0.24                                     |
| 7/16/01     | 0.03       | 3,591                 | 0.17   | 0.17                                     |

**APPENDIX B**

**REVISIONS TO  
AIR QUALITY IMPACT ANALYSIS  
FOR  
CARBON MONOXIDE**

Table B-1. Summary of CO Facilities Considered for Inclusion in the AAQS and PSD Class II Air Modeling Analyses (Revised 8/6/01)

| AIRS<br>Number | Facility                      | County     | UTM Coordinates |               | Relative to Okeelanta Power <sup>a</sup> |           |                  |                    | Maximum<br>CO<br>Emissions<br>(TPY) | Q <sub>i</sub> (TPY)<br>Emission<br>Threshold <sup>b</sup><br>(Dist - 6) x 20 | Include in<br>Modeling<br>Analysis ? |
|----------------|-------------------------------|------------|-----------------|---------------|--|-----------|------------------|--------------------|-------------------------------------|---|--------------------------------------|
|                |                               |            | East<br>(km)    | North<br>(km) | X<br>(km)                                | Y<br>(km) | Distance<br>(km) | Direction<br>(deg) |                                     |   |                                      |
| 0990086        | Glades Correctional Institute | Palm Beach | 523.4           | 2955.2        | -1.5                                     | 15.1      | 15.2             | 354                | 10                                  | 183.5   | NO                                   |
| 0990026        | Sugar Cane Growers            | Palm Beach | 534.9           | 2953.3        | 10.0                                     | 13.2      | 16.6             | 37                 | 33,771                              | 211.2   | YES                                  |
| 0510001        | Everglades Sugar              | Hendry     | 509.6           | 2954.2        | -15.3                                    | 14.1      | 20.8             | 313                | 15                                  | 296.1   | NO                                   |
| 0510003        | U.S. Sugar Clewiston          | Hendry     | 506.1           | 2956.9        | -18.8                                    | 16.8      | 25.2             | 312                | 64,644                              | 384.3   | YES                                  |
| 0990016        | Atlantic Sugar Association    | Palm Beach | 552.9           | 2945.2        | 28.0                                     | 5.1       | 28.5             | 80                 | 25,065                              | 449.2   | YES                                  |
| 0990061        | U.S. Sugar -Bryant            | Palm Beach | 538.8           | 2968.1        | 13.9                                     | 28.0      | 31.3             | 26                 | 19,958                              | 505.2   | YES                                  |
| 0990019        | Osceola Farms                 | Palm Beach | 544.2           | 2968.0        | 19.3                                     | 27.9      | 33.9             | 35                 | 25,175                              | 558.5   | YES                                  |
| 0510015        | Southern Gardens Citrus       | Hendry     | 487.6           | 2957.6        | -37.3                                    | 17.5      | 41.2             | 295                | 1,888                               | 704.0   | YES                                  |
| 0990021        | Pratt & Whitney               | Palm Beach | 559.2           | 2978.3        | 34.3                                     | 38.2      | 51.3             | 42                 | 1,000                               | 906.8   | YES                                  |
| 0850102        | Bechtel Indiantown            | Martin     | 545.6           | 2991.5        | 20.7                                     | 51.4      | 55.4             | 22                 | 1,651                               | 988.2   | YES                                  |
| 0850001        | FPL -Martin                   | Martin     | 543.1           | 2992.9        | 18.2                                     | 52.8      | 55.8             | 19                 | 2,285                               | 997.0   | YES                                  |
| 0500045        | Lake Worth Utilities          | Palm Beach | 592.8           | 2943.7        | 67.9                                     | 3.6       | 68.0             | 87                 | 204                                 | 1239.9  | NO                                   |
| 0360119        | Lee County Resource Recovery  | Lee        | 424.0           | 2946.0        | -100.9                                   | 5.9       | 101.1            | 273                | 238                                 | 1901.4  | NO                                   |
| 0710002        | FPL - Fort Myers <sup>c</sup> | Lee        | 422.1           | 2952.9        | -102.8                                   | 12.8      | 103.6            | 277                | 4,478                               | 1951.9  | YES                                  |

<sup>a</sup> Okeelanta Power Coordinates: 524.9 2940.1

<sup>b</sup> Proposed project's emissions are significant to 6 kilometers.

Emission inventory is limited to facilities within 56 km of Okeelanta facility but includes major plants outside the proposed project's significant impact distance.

<sup>c</sup> Large source beyond screening area included in modeling analysis.

Table B-2. Summary of CO Sources Included in the Air Modeling Analysis (Revised 8/13/01)

| AIRS<br>Number | Facility                                | Units               | ISCST3<br>ID Name | Stack and Operating Parameters |                 |                    |                   | Emission Rate<br>(g/s) |
|----------------|---|---------------------|-------------------|--------------------------------|-----------------|--------------------|-------------------|------------------------|
|                |   |                     |                   | Height<br>(m)                  | Diameter<br>(m) | Temperature<br>(K) | Velocity<br>(m/s) |                        |
| 50PMB500332    | Okeelanta Sugar Mill                    | Boiler 16           | OKBLR16           | 22.9                           | 1.52            | 483.2              | 22.86             | 4.07                   |
| 0990026        | Sugar Cane Growers <sup>a</sup>         | Unit 1&2            | SUGCN12           | 45.7                           | 1.87            | 339.0              | 21.75             | 547.09                 |
|                |   | Unit 3              | SUGCN3            | 27.4                           | 1.52            | 339.0              | 22.25             | 187.61                 |
|                |   | Unit 4 PSD          | SUGCN4            | 54.9                           | 2.44            | 339.0              | 21.73             | 467.71                 |
|                |   | Unit 5              | SUGCN5            | 45.7                           | 2.30            | 339.0              | 15.94             | 359.60                 |
|                |   | Unit 8 PSD          | SUGCN8            | 47.2                           | 2.90            | 339.0              | 13.62             | 381.02                 |
| 0510003        | U.S. Sugar Clewiston                    | Unit 1              | BRL1              | 65.0                           | 2.44            | 347.0              | 19.20             | 811.79                 |
|                |   | Unit 2              | BLR2              | 65.0                           | 2.44            | 338.0              | 17.32             | 732.19                 |
|                |   | Unit 3              | BLR3              | 65.0                           | 2.44            | 333.2              | 8.47              | 334.28                 |
|                |   | Unit 4              | BLR4              | 45.7                           | 2.51            | 344.3              | 25.35             | 518.43                 |
|                |   | Unit 7              | BLR7              | 68.6                           | 2.59            | 405.4              | 25.96             | 71.62                  |
| 0990016        | Atlantic Sugar Association <sup>a</sup> | Unit 1              | ATLSUG1           | 27.4                           | 1.83            | 346.0              | 17.97             | 299.90                 |
|                |   | Unit 2              | ATLSUG2           | 27.4                           | 1.83            | 350.0              | 23.36             | 585.60                 |
|                |   | Unit 3              | ATLSUG3           | 27.4                           | 1.83            | 350.0              | 21.56             | 180.20                 |
|                |   | Unit 4              | ATLSUG4           | 27.4                           | 1.83            | 344.0              | 25.16             | 180.20                 |
|                |   | Unit 5 <sup>b</sup> | ATLSUG5           | 27.4                           | 1.68            | 339.0              | 19.24             | 209.10                 |
| 0990061        | U.S. Sugar -Bryant <sup>a</sup>         | Unit 5 PSD          | USSBRY5           | 42.7                           | 2.90            | 345.0              | 11.49             | 760.91                 |
|                |   | Unit 1,2&3          | USBRY123          | 19.8                           | 1.64            | 342.0              | 36.40             | 1309.77                |
| 0990019        | Osceola Farms <sup>a</sup>              | Unit 2              | OSBLR2            | 27.4                           | 1.52            | 339.0              | 18.63             | 317.52                 |
|                |   | Unit 3              | OSBLR3            | 27.4                           | 1.92            | 344.0              | 14.34             | 128.77                 |
|                |   | Unit 4              | OSBLR4            | 27.4                           | 1.83            | 344.0              | 16.53             | 317.52                 |
|                |   | Unit 5              | OSBLR5            | 27.4                           | 1.52            | 344.0              | 17.85             | 374.22                 |
|                |   | Unit 6              | OSBLR6            | 27.4                           | 1.92            | 339.0              | 18.25             | 310.40                 |
| 0510015        | Southern Gardens Citrus - PSD           | Peel Dryer          | SGARDDRY          | 38.1                           | 1.16            | 353.0              | 7.45              | 116.68                 |
|                |   | Boilers 1-3         | SGARDBLR          | 16.8                           | 1.22            | 478.0              | 14.23             | 0.50                   |
| 0990021        | Pratt & Whitney                         | Jet Engine          | PWJETEG           | 21.3                           | 18.30           | 383.2              | 12.20             | 21000                  |
|                |   | Unit 1              | PRWIT1            | 15.2                           | 0.91            | 810.9              | 143.70            | 1.63                   |
|                |   | Unit 16             | PRWIT16           | 4.6                            | 0.76            | 533.2              | 6.90              | 0.43                   |
|                |   | Unit 22             | PRWIT22           | 20.1                           | 2.32            | 672.0              | 10.20             | 1.11                   |
|                |   | Unit 40             | PRWIT40           | 14.9                           | 1.22            | 298.2              | 0.04              | 0.12                   |
|                |   | Unit 45             | PRWIT45           | 3.7                            | 0.15            | 298.2              | 2.60              | 2.01                   |
|                |   | Unit 59             | PRWIT59           | 6.1                            | 0.46            | 533.2              | 4.90              | 0.64                   |
|                |   | Unit 68             | PRWIT68           | 3.7                            | 0.24            | 922.0              | 151.40            | 0.23                   |
|                |   | Unit 69             | PRWIT69           | 5.5                            | 3.66            | 422.0              | 0.08              | 5.98                   |
| 0850102        | Bechtel Indiantown                      |                     | BECHTIND          | 150.9                          | 4.88            | 333.2              | 30.50             | 47.38                  |
| 0850001        | FPL -Martin                             | Units 1&2           | MART12            | 152.1                          | 7.99            | 420.9              | 21.03             | 38.92                  |
|                |   | Aux Blr PSD         | MARTAUX           | 18.3                           | 1.10            | 535.4              | 15.24             | -                      |
|                |   | Diesel Gens PSD     | MARTGEN           | 7.6                            | 0.30            | 785.9              | 39.62             | -                      |
|                |   | Units 3&4 PSD       | MART34            | 64.9                           | 6.10            | 410.9              | 18.90             | 26.66                  |
| 0710002        | FPL Fort Myers                          | Gas Turbines 1 - 12 | FMGT112           | 9.8                            | 3.47            | 797.0              | 57.73             | 61.69                  |
|                |   | HRSGs 1-6           | FMCT1_6           | 38.1                           | 5.79            | 377.6              | 21.43             | 32.51                  |
|                |   | CT 1 - 2            | FMCT1_2           | 24.4                           | 6.25            | 852.00             | 39.1              | 34.32                  |

<sup>a</sup> Facilities or sources with facilities that operate only during the October 1 through April 30 crop season.<sup>b</sup> Sugar mill sources that operate all year.

Table B-3. Maximum Predicted CO Impacts for the Proposed Project  
AAQS Screening Analysis, Okeelanta Power, L.P. (Revised 8/13/01)

| Pollutant/<br>Averaging Time | Concentration<br>(ug/m <sup>3</sup> ) <sup>a</sup> | Receptor Location <sup>b</sup> |                 | Time Period<br>(YYMMDDHH) |
|------------------------------|--|--------------------------------|-----------------|---------------------------|
|                              |  | Direction<br>(degree)          | Distance<br>(m) |                           |
| HSH 8-Hour                   | 871  | 217                            | 3,534           | 87103024                  |
|                              | 690  | 227                            | 4,133           | 88101516                  |
|                              | 618  | 221                            | 3,785           | 89110624                  |
|                              | 714  | 224                            | 3,921           | 90041324                  |
|                              | 785  | 20                             | 6,000           | 91110524                  |
| HSH 1-Hour                   | 2,776  | 20                             | 6,000           | 87011923                  |
|                              | 2,802  | 221                            | 3,785           | 88122618                  |
|                              | 3,146  | 20                             | 5,000           | 89040619                  |
|                              | 2,959  | 20                             | 5,000           | 90031904                  |
|                              | 2,975  | 20                             | 6,000           | 91102101                  |

<sup>a</sup> Based on 5-year meteorological record, West Palm Beach, 1987 to 1991.

<sup>b</sup> Relative to the Cogeneration Boiler B stack.

Note: YYMMDDHH = Year, Month, Day, Hour Ending  
HSH = Highest, Second-Highest

Table B-4. Maximum Predicted CO Concentrations for All Sources Compared to AAQS,  
Refined Analysis, Okeelanta Power, L.P. (Revised 8/13/01)

| Pollutant/<br>Averaging Time | Concentration (ug/m <sup>3</sup> ) |                    |            | Receptor Location <sup>a</sup> |                 | Time Period<br>(YYMMDDHH) | Florida<br>AAQS<br>(ug/m <sup>3</sup> ) |
|------------------------------|------------------------------------|--------------------|------------|--------------------------------|-----------------|---------------------------|---|
|                              | Total                              | Modeled<br>Sources | Background | Direction<br>(degree)          | Distance<br>(m) |                           |   |
| HSH 8-hour                   | 3,861                              | 871                | 2,990      | 217                            | 3,534           | 87103024                  | 10,000                                  |
|                              | 3,816                              | 826                | 2,990      | 17                             | 6,000           | 91110524                  |   |
| HSH 1-hour                   | 7,654                              | 3,284              | 4,370      | 24                             | 6,000           | 89040619                  | 40,000                                  |
|                              | 7,520                              | 3,150              | 4,370      | 25                             | 6,000           | 90102418                  |   |
|                              | 7,448                              | 3,078              | 4,370      | 25                             | 6,000           | 91033102                  |   |

<sup>a</sup> Relative to the Cogeneration Boiler B stack.

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

HSH = Highest, Second-Highest



**APPENDIX C**  
**REVISED EMISSION TABLES**  
**AND**  
**PSD APPLICABILITY**

Table 2-4. Maximum Annual Emissions for Single Boiler at Okeelanta Power L.P. (Revised 8/6/01)

| Regulated<br>Pollutant                   | Biomass                          |   |                              | Alternate Fuel                   |   |                              | Total<br>Annual<br>Emissions<br>(TPY) |
|--|----------------------------------|---|------------------------------|----------------------------------|---|------------------------------|---------------------------------------|
|  | Emission<br>Factor<br>(lb/MMBtu) | Activity<br>Factor<br>(10 <sup>12</sup> Btu/yr) | Annual<br>Emissions<br>(TPY) | Emission<br>Factor<br>(lb/MMBtu) | Activity<br>Factor<br>(10 <sup>12</sup> Btu/yr) | Annual<br>Emissions<br>(TPY) |                                       |
| <u>100% Biomass</u>                      |                                  |   |                              |                                  |   |                              |                                       |
| Particulate (TSP)                        | 0.03                             | 6.263   | 93.95                        | --                               | --  | --                           | 93.95 <sup>a</sup>                    |
| Particulate (PM <sub>10</sub> )          | 0.03                             | 6.263   | 93.95                        | --                               | --  | --                           | 93.95 <sup>a</sup>                    |
| Sulfur dioxide                           | 0.10                             | 6.263   | 313.15                       | --                               | --  | --                           | 313.15 <sup>a</sup>                   |
| Nitrogen oxides                          | 0.15                             | 6.263   | 469.73                       | --                               | --  | --                           | 469.73 <sup>a</sup>                   |
| Carbon monoxide                          | 0.35                             | 6.263   | 1,096.03                     | --                               | --  | --                           | 1,096.03 <sup>a</sup>                 |
| VOC                                      | 0.06                             | 6.263   | 187.89                       | --                               | --  | --                           | 187.89 <sup>a</sup>                   |
| Lead                                     | 1.6E-04                          | 6.263   | 0.501                        | --                               | --  | --                           | 0.501 <sup>a</sup>                    |
| Mercury                                  | 5.43E-06                         | 6.263   | 0.0170                       | --                               | --  | --                           | 0.0170 <sup>a</sup>                   |
| Beryllium <sup>b</sup>                   | 6.00E-07                         | 2.881 <sup>c</sup>                              | 0.0009                       | --                               | --  | --                           | 0.00086                               |
| Fluorides                                | 7.00E-04                         | 6.263   | 2.19                         | --                               | --  | --                           | 2.19 <sup>a</sup>                     |
| Sulfuric acid mist                       | 0.0061                           | 6.263   | 19.10                        | --                               | --  | --                           | 19.10 <sup>a</sup>                    |
| <u>75.1% Biomass / 24.9% Fuel Oil</u>    |                                  |   |                              |                                  |   |                              |                                       |
| Particulate (TSP)                        | 0.03                             | 4.428   | 66.42                        | 0.03                             | 1.468   | 22.02                        | 88.44                                 |
| Particulate (PM <sub>10</sub> )          | 0.03                             | 4.428   | 66.42                        | 0.03                             | 1.468   | 22.02                        | 88.44                                 |
| Sulfur dioxide                           | 0.10                             | 4.428   | 221.40                       | 0.05                             | 1.468   | 36.70                        | 258.10                                |
| Nitrogen oxides                          | 0.15                             | 4.428   | 332.10                       | 0.15                             | 1.468   | 110.10                       | 442.20                                |
| Carbon monoxide                          | 0.35                             | 4.428   | 774.90                       | 0.35                             | 1.468   | 256.90                       | 1,031.80                              |
| VOC                                      | 0.06                             | 4.428   | 132.84                       | 0.03                             | 1.468   | 22.02                        | 154.86                                |
| Lead                                     | 1.6E-04                          | 4.428   | 0.354                        | 8.9E-07                          | 1.468   | 0.0007                       | 0.355                                 |
| Mercury                                  | 5.43E-06                         | 4.428   | 0.0120                       | 2.4E-06                          | 1.468   | 0.0018                       | 0.0138                                |
| Beryllium <sup>b</sup>                   | 6.00E-07                         | 2.037 <sup>c</sup>                              | 0.0006                       | 3.5E-07                          | 1.468   | 0.00026                      | 0.00087 <sup>a</sup>                  |
| Fluorides                                | 7.00E-04                         | 4.428   | 1.55                         | 6.27E-06                         | 1.468   | 0.0046                       | 1.5544                                |
| Sulfuric acid mist                       | 0.0061                           | 4.428   | 13.51                        | 0.0015                           | 1.468   | 1.10                         | 14.61                                 |
| <u>75.1% Biomass / 24.9% Natural Gas</u> |                                  |   |                              |                                  |   |                              |                                       |
| Particulate (TSP)                        | 0.03                             | 4.428   | 66.42                        | 0.0073                           | 1.468   | 5.36                         | 71.78                                 |
| Particulate (PM <sub>10</sub> )          | 0.03                             | 4.428   | 66.42                        | 0.0073                           | 1.468   | 5.36                         | 71.78                                 |
| Sulfur dioxide                           | 0.10                             | 4.428   | 221.40                       | 0.00058                          | 1.468   | 0.43                         | 221.83                                |
| Nitrogen oxides                          | 0.15                             | 4.428   | 332.10                       | 0.15                             | 1.468   | 110.10                       | 442.20                                |
| Carbon monoxide                          | 0.35                             | 4.428   | 774.90                       | 0.08                             | 1.468   | 58.72                        | 833.62                                |
| VOC                                      | 0.06                             | 4.428   | 132.84                       | 0.0053                           | 1.468   | 3.89                         | 136.73                                |
| Lead                                     | 1.6E-04                          | 4.428   | 0.354                        | 4.8E-07                          | 1.468   | 0.0004                       | 0.355                                 |
| Mercury                                  | 5.43E-06                         | 4.428   | 0.0120                       | 2.5E-07                          | 1.468   | 0.0002                       | 0.0122                                |
| Beryllium <sup>b</sup>                   | 6.00E-07                         | 2.037 <sup>c</sup>                              | 0.0006                       | 1.2E-08                          | 1.468   | 0.00001                      | 0.00062                               |
| Fluorides                                | 7.00E-04                         | 4.428   | 1.55                         | --                               | --  | --                           | 1.5498                                |
| Sulfuric acid mist                       | 0.0061                           | 4.428   | 13.51                        | 3.55E-05                         | 1.468   | 0.03                         | 13.53                                 |

<sup>a</sup> Denotes maximum annual emissions for any fuel scenario.

<sup>b</sup> Stack tests indicate that Beryllium emissions are below detectable limits for bagasse-firing, therefore, the emission factor and potential emissions are based on wood-firing.

<sup>c</sup> Wood-firing heat input represents 46% of total heat input, therefore, activity factor reflects 46% of total biomass activity factor.

Note: No emissions of total reduced sulfur, asbestos, or vinyl chloride are expected.

Table 2-5. Maximum Annual Emissions for Okeelanta Power L.P. (total all boilers, Revised 8/6/01)

| Regulated<br>Pollutant                   | Biomass                          |   |                              | Alternate Fuel                   |   |                              | Total<br>Annual<br>Emissions<br>(TPY) |
|--|----------------------------------|---|------------------------------|----------------------------------|---|------------------------------|---------------------------------------|
|  | Emission<br>Factor<br>(lb/MMBtu) | Activity<br>Factor<br>(10 <sup>12</sup> Btu/yr) | Annual<br>Emissions<br>(TPY) | Emission<br>Factor<br>(lb/MMBtu) | Activity<br>Factor<br>(10 <sup>12</sup> Btu/yr) | Annual<br>Emissions<br>(TPY) |                                       |
| <u>100% Biomass</u>                      |                                  |   |                              |                                  |   |                              |                                       |
| Particulate (TSP)                        | 0.03                             | 11.500  | 172.50                       | --                               | --  | --                           | 172.50 <sup>a</sup>                   |
| Particulate (PM <sub>10</sub> )          | 0.03                             | 11.500  | 172.50                       | --                               | --  | --                           | 172.50 <sup>a</sup>                   |
| Sulfur dioxide                           | 0.10                             | 11.500  | 575.00                       | --                               | --  | --                           | 575.00 <sup>a</sup>                   |
| Nitrogen oxides                          | 0.15                             | 11.500  | 862.50                       | --                               | --  | --                           | 862.50 <sup>a</sup>                   |
| Carbon monoxide                          | 0.35                             | 11.500  | 2,012.50                     | --                               | --  | --                           | 2,012.50 <sup>a</sup>                 |
| VOC                                      | 0.06                             | 11.500  | 345.00                       | --                               | --  | --                           | 345.00 <sup>a</sup>                   |
| Lead                                     | 1.6E-04                          | 11.500  | 0.920                        | --                               | --  | --                           | 0.920 <sup>a</sup>                    |
| Mercury                                  | 5.43E-06                         | 11.500  | 0.0312                       | --                               | --  | --                           | 0.031 <sup>a</sup>                    |
| Beryllium <sup>b</sup>                   | 6.00E-07                         | 5.290 <sup>c</sup>                              | 0.0016                       | --                               | --  | --                           | 0.00159                               |
| Fluorides                                | 7.00E-04                         | 11.500  | 4.03                         | --                               | --  | --                           | 4.03 <sup>a</sup>                     |
| Sulfuric acid mist                       | 0.0061                           | 11.500  | 35.08                        | --                               | --  | --                           | 35.08 <sup>a</sup>                    |
| <u>75.1% Biomass / 24.9% Fuel Oil</u>    |                                  |   |                              |                                  |   |                              |                                       |
| Particulate (TSP)                        | 0.03                             | 8.130   | 121.95                       | 0.03                             | 2.696   | 40.44                        | 162.39                                |
| Particulate (PM <sub>10</sub> )          | 0.03                             | 8.130   | 121.95                       | 0.03                             | 2.696   | 40.44                        | 162.39                                |
| Sulfur dioxide                           | 0.10                             | 8.130   | 406.50                       | 0.05                             | 2.696   | 67.40                        | 473.90                                |
| Nitrogen oxides                          | 0.15                             | 8.130   | 609.75                       | 0.15                             | 2.696   | 202.20                       | 811.95                                |
| Carbon monoxide                          | 0.35                             | 8.130   | 1,422.75                     | 0.35                             | 2.696   | 471.80                       | 1,894.55                              |
| VOC                                      | 0.06                             | 8.130   | 243.90                       | 0.03                             | 2.696   | 40.44                        | 284.34                                |
| Lead                                     | 1.6E-04                          | 8.130   | 0.650                        | 8.9E-07                          | 2.696   | 0.0012                       | 0.652                                 |
| Mercury                                  | 5.43E-06                         | 8.130   | 0.0221                       | 2.4E-06                          | 2.696   | 0.0032                       | 0.025                                 |
| Beryllium <sup>b</sup>                   | 6.00E-07                         | 3.740 <sup>c</sup>                              | 0.0011                       | 3.5E-07                          | 2.696   | 0.00047                      | 0.00159 <sup>a</sup>                  |
| Fluorides                                | 7.00E-04                         | 8.130   | 2.85                         | 6.27E-06                         | 2.696   | 0.0085                       | 2.854                                 |
| Sulfuric acid mist                       | 0.0061                           | 8.130   | 24.80                        | 0.0015                           | 2.696   | 2.02                         | 26.82                                 |
| <u>75.1% Biomass / 24.9% Natural Gas</u> |                                  |   |                              |                                  |   |                              |                                       |
| Particulate (TSP)                        | 0.03                             | 8.130   | 121.95                       | 0.0073                           | 2.696   | 9.84                         | 131.79                                |
| Particulate (PM <sub>10</sub> )          | 0.03                             | 8.130   | 121.95                       | 0.0073                           | 2.696   | 9.84                         | 131.79                                |
| Sulfur dioxide                           | 0.10                             | 8.130   | 406.50                       | 0.00058                          | 2.696   | 0.78                         | 407.28                                |
| Nitrogen oxides                          | 0.15                             | 8.130   | 609.75                       | 0.15                             | 2.696   | 202.20                       | 811.95                                |
| Carbon monoxide                          | 0.35                             | 8.130   | 1,422.75                     | 0.08                             | 2.696   | 107.84                       | 1,530.59                              |
| VOC                                      | 0.06                             | 8.130   | 243.90                       | 0.0053                           | 2.696   | 7.14                         | 251.04                                |
| Lead                                     | 1.6E-04                          | 8.130   | 0.650                        | 4.8E-07                          | 2.696   | 0.0006                       | 0.651                                 |
| Mercury                                  | 5.43E-06                         | 8.130   | 0.0221                       | 2.5E-07                          | 2.696   | 0.0003                       | 0.022                                 |
| Beryllium <sup>b</sup>                   | 6.00E-07                         | 3.740 <sup>c</sup>                              | 0.0011                       | 1.2E-08                          | 2.696   | 0.00002                      | 0.00114                               |
| Fluorides                                | 7.00E-04                         | 8.130   | 2.85                         | --                               | --  | --                           | 2.846                                 |
| Sulfuric acid mist                       | 0.0061                           | 8.130   | 24.80                        | 3.55E-05                         | 2.696   | 0.05                         | 24.84                                 |

<sup>a</sup> Denotes maximum annual emissions for any fuel scenario.

<sup>b</sup> Stack tests indicate that Beryllium emissions are below detectable limits for bagasse-firing, therefore, the emission factor and potential emissions are based on wood-firing.

<sup>c</sup> Wood-firing heat input represents 46% of total heat input, therefore, activity factor reflects 46% of total biomass activity factor.

Note: No emissions of total reduced sulfur, asbestos, or vinyl chloride are expected.

Table 3-1. Current Actual and Future Potential Emissions, Okeelanta Power L.P. (Revised 8/6/01)

| Boiler                        | Operating Hours <sup>a</sup> | Heat Input <sup>a</sup><br>(MMBtu/yr) | Annual Emissions (TPY) |                 |              |               |                 |              |
|-------------------------------|------------------------------|---------------------------------------|------------------------|-----------------|--------------|---------------|-----------------|--------------|
|                               |                              |                                       | CO                     | SO <sub>2</sub> | Lead         | Mercury       | Beryllium       | Fluoride     |
| Boiler A                      | 7,265                        | 3,824,398                             | 478.34                 | 47.11           | 0.036        | 0.0016        | 1.99E-04        | 0.358        |
| Boiler B                      | 5,927                        | 3,206,304                             | 485.29                 | 38.32           | 0.032        | 0.0014        | 1.90E-04        | 0.292        |
| Boiler C                      | 6,978                        | 3,694,714                             | 562.44                 | 47.80           | 0.034        | 0.0015        | 1.89E-04        | 0.346        |
| <b>Total</b>                  | <b>20,170</b>                | <b>10,725,416</b>                     | <b>1,526.07</b>        | <b>133.23</b>   | <b>0.102</b> | <b>0.0045</b> | <b>5.78E-04</b> | <b>0.996</b> |
| Future Potential Emissions    |                              | 11,500,000                            | 2,012.5                | 575.0           | 0.920        | 0.031         | 0.0016          | 4.03         |
| Net Increase                  |                              |                                       | 486.4                  | 441.8           | 0.818        | 0.027         | 0.0010          | 3.03         |
| PSD Significant Emission Rate |                              |                                       | 100                    | 40              | 0.6          | 0.1           | 0.0004          | 3            |

<sup>a</sup> Based on the period April 1999 through March 2000.

Table 3-2. Current Actual Lead, Mercury, Beryllium, and Fluoride Emissions for Okeelanta Power L.P. Boilers (Revised 8/6/01)

| Parameter                                 | Boiler A |           |                       |           | Boiler B  |          |                       |           | Boiler C  |           |                       |           |           |           |           |
|---|----------|-----------|-----------------------|-----------|-----------|----------|-----------------------|-----------|-----------|-----------|-----------------------|-----------|-----------|-----------|-----------|
|   | Lead     | Mercury   | Beryllium             | Fluoride  | Lead      | Mercury  | Beryllium             | Fluoride  | Lead      | Mercury   | Beryllium             | Fluoride  |           |           |           |
| <u>Emission Factor (lb/MMBtu)</u>         |          |           |                       |           |           |          |                       |           |           |           |                       |           |           |           |           |
| Wood waste <sup>a</sup>                   | 3.03E-05 | 1.33E-06  | 2.23E-07 <sup>d</sup> | 1.46E-04  | 3.03E-05  | 1.33E-06 | 2.23E-07 <sup>d</sup> | 1.46E-04  | 3.03E-05  | 1.33E-06  | 2.23E-07 <sup>d</sup> | 1.46E-04  |           |           |           |
| Bagasse <sup>a</sup>                      | 8.91E-06 | 3.66E-07  | ND                    | 2.24E-04  | 8.91E-06  | 3.66E-07 | ND                    | 2.24E-04  | 8.91E-06  | 3.66E-07  | ND                    | 2.24E-04  |           |           |           |
| No. 2 Fuel <sup>b</sup>                   | 8.90E-07 | 2.40E-06  | 3.50E-07              | 6.30E-06  | 8.90E-07  | 2.40E-06 | 3.50E-07              | 6.30E-06  | 8.90E-07  | 2.40E-06  | 3.50E-07              | 6.30E-06  |           |           |           |
| <u>Heat Input (MMBtu/yr) <sup>c</sup></u> |          |           |                       |           |           |          |                       |           |           |           |                       |           |           |           |           |
| Wood                                      | 45.68%   | 1,746,985 | 1,746,985             | 1,746,985 | 1,746,985 | 52.05%   | 1,668,881             | 1,668,881 | 1,668,881 | 1,668,881 | 44.68%                | 1,650,798 | 1,650,798 | 1,650,798 | 1,650,798 |
| Bagasse                                   | 53.69%   | 2,053,319 | 2,053,319             | 2,053,319 | 2,053,319 | 47.34%   | 1,517,864             | 1,517,864 | 1,517,864 | 1,517,864 | 54.48%                | 2,012,880 | 2,012,880 | 2,012,880 | 2,012,880 |
| No. 2                                     | 0.63%    | 24,094    | 24,094                | 24,094    | 24,094    | 0.61%    | 19,558                | 19,558    | 19,558    | 19,558    | 0.84%                 | 31,036    | 31,036    | 31,036    | 31,036    |
| Total                                     |          | 3,824,398 | 3,824,398             | 3,824,398 | 3,824,398 |          | 3,206,304             | 3,206,304 | 3,206,304 | 3,206,304 |                       | 3,694,714 | 3,694,714 | 3,694,714 | 3,694,714 |
| <u>Emissions (TPY)</u>                    |          |           |                       |           |           |          |                       |           |           |           |                       |           |           |           |           |
| April 1999 - March 2000 Emissions         | 0.036    | 0.0016    | 1.99E-04              | 0.358     | 0.032     | 0.0014   | 1.90E-04              | 0.292     | 0.03      | 0.0015    | 1.89E-04              | 0.346     |           |           |           |

<sup>a</sup> Based on average actual stack test data for 1999 and 2000.

<sup>b</sup> Based upon permit limit.

<sup>c</sup> Based upon actual boiler heat input for period April 1999 - March 2000.

<sup>d</sup> Emissions based on average of one detectable test from 1999 and one half of the detectable limits for remaining 1999 and 2000 stack test data since they were below the detectable limits.

Notes: ND = Nondetectable; indicates pollutant emissions are below the detectable limit.

Table C-1. Estimated Future Actual Emissions of Selected Pollutants for Okeelanta Power L.P. (total all boilers)

| Regulated<br>Pollutant                   | Biomass                          |  |                              | Alternate Fuel                   |   |                              | Total<br>Actual<br>Emissions<br>(TPY) |
|--|----------------------------------|--|------------------------------|----------------------------------|---|------------------------------|---------------------------------------|
|  | Emission<br>Factor<br>(lb/MMBtu) | Activity<br>Factor <sup>c</sup><br>(10 <sup>12</sup> Btu/yr) | Annual<br>Emissions<br>(TPY) | Emission<br>Factor<br>(lb/MMBtu) | Activity<br>Factor<br>(10 <sup>12</sup> Btu/yr) | Annual<br>Emissions<br>(TPY) |                                       |
| <u>100% Biomass</u>                      |                                  |  |                              |                                  |   |                              |                                       |
| Lead--Wood                               | 3.03E-05                         | 5.290  | 0.080                        | --                               | --  | --                           | 0.108 <sup>a</sup>                    |
| --Bagasse                                | 8.91E-06                         | 6.210  | 0.028                        | --                               | --  | --                           | --                                    |
| Mercury--Wood                            | 1.33E-06                         | 5.290  | 0.0035                       | --                               | --  | --                           | 0.0047                                |
| --Bagasse                                | 3.66E-07                         | 6.210  | 0.0011                       | --                               | --  | --                           | --                                    |
| Beryllium--Wood <sup>b</sup>             | 2.23E-07                         | 5.290  | 0.00059                      | --                               | --  | --                           | 0.00059                               |
| Fluorides--Wood                          | 1.46E-04                         | 5.290  | 0.386                        | --                               | --  | --                           | 1.082 <sup>a</sup>                    |
| --Bagasse                                | 2.24E-04                         | 6.210  | 0.696                        | --                               | --  | --                           | --                                    |
| <u>75.1% Biomass / 24.9% Fuel Oil</u>    |                                  |  |                              |                                  |   |                              |                                       |
| Lead--Wood                               | 3.03E-05                         | 3.740  | 0.057                        | 8.9E-07                          | 2.696   | 0.0012                       | 0.077                                 |
| --Bagasse                                | 8.91E-06                         | 4.390  | 0.020                        | --                               | --  | --                           | --                                    |
| Mercury--Wood                            | 1.33E-06                         | 3.740  | 0.0025                       | 2.4E-06                          | 2.696   | 0.0032                       | 0.0065 <sup>a</sup>                   |
| --Bagasse                                | 3.66E-07                         | 4.390  | 0.00080                      | --                               | --  | --                           | --                                    |
| Beryllium--Wood <sup>b</sup>             | 2.23E-07                         | 3.740  | 0.00042                      | 3.5E-07                          | 2.696   | 0.00047                      | 0.00089 <sup>a</sup>                  |
| Fluorides--Wood                          | 1.46E-04                         | 3.740  | 0.273                        | 6.27E-06                         | 2.696   | 0.0085                       | 0.773                                 |
| --Bagasse                                | 2.24E-04                         | 4.390  | 0.492                        | --                               | --  | --                           | --                                    |
| <u>75.1% Biomass / 24.9% Natural Gas</u> |                                  |  |                              |                                  |   |                              |                                       |
| Lead--Wood                               | 3.03E-05                         | 3.740  | 0.057                        | 4.8E-07                          | 2.696   | 0.0006                       | 0.077                                 |
| --Bagasse                                | 8.91E-06                         | 4.390  | 0.020                        | --                               | --  | --                           | --                                    |
| Mercury--Wood                            | 1.33E-06                         | 3.740  | 0.0025                       | 2.5E-07                          | 2.696   | 0.0003                       | 0.0036                                |
| --Bagasse                                | 3.66E-07                         | 4.390  | 0.00080                      | --                               | --  | --                           | --                                    |
| Beryllium--Wood <sup>b</sup>             | 2.23E-07                         | 3.740  | 0.00042                      | 1.2E-08                          | 2.696   | 0.00002                      | 0.00043                               |
| Fluorides--Wood                          | 1.46E-04                         | 3.740  | 0.273                        | --                               | --  | --                           | 0.765                                 |
| --Bagasse                                | 2.24E-04                         | 4.390  | 0.492                        | --                               | --  | --                           | --                                    |

<sup>a</sup> Denotes maximum annual emissions for any fuel scenario.

<sup>b</sup> Stack tests indicate that Beryllium emissions are below detectable limits for bagasse-firing, therefore, the emission factor and potential emissions are based on wood-firing only.

<sup>c</sup> Wood-firing heat input represents 46% of total heat input, therefore, the wood-firing activity factor reflects 46% of total biomass activity factor, while bagasse represents 54% of the total.

Note: No emissions of total reduced sulfur, asbestos, or vinyl chloride are expected.

Table C-2. Current and Future Actual Emissions, Okeelanta Power L.P.

| Boiler                            | Operating Hours <sup>a</sup> | Heat Input <sup>a</sup><br>(MMBtu/yr) | Annual Emissions (TPY) |         |           |          |
|-----------------------------------|------------------------------|---------------------------------------|------------------------|---------|-----------|----------|
|                                   |                              |                                       | Lead                   | Mercury | Beryllium | Fluoride |
| Boilers A, B, C<br>Total          | 20,170                       | 10,725,416                            | 0.102                  | 0.0045  | 5.78E-04  | 0.996    |
| Estimated Future Actual Emissions |                              | 11,500,000                            | 0.108                  | 0.007   | 0.0009    | 1.08     |
| Net Increase                      |                              |                                       | 0.006                  | 0.002   | 0.0003    | 0.09     |
| PSD Significant Emission Rate     |                              |                                       | 0.6                    | 0.1     | 0.0004    | 3        |

<sup>a</sup> Based on the period April 1999 through March 2000.

Table C-3. Summary of Okeelanta Power Stack Tests - Wood Firing

| Pollutant                       | Stack Testing: 05/96         |                              |                              | Stack Testing: 01/99-02/99   |                              |                              | Stack Testing: 12/99-01/00   |                              |                              | Stack Testing: 01/3/01-01/23/01 |                              |                              |
|---------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|---------------------------------|------------------------------|------------------------------|
|                                 | Unit A<br>Wood<br>(lb/MMBtu) | Unit B<br>Wood<br>(lb/MMBtu) | Unit C<br>Wood<br>(lb/MMBtu) | Unit A<br>Wood<br>(lb/MMBtu) | Unit B<br>Wood<br>(lb/MMBtu) | Unit C<br>Wood<br>(lb/MMBtu) | Unit A<br>Wood<br>(lb/MMBtu) | Unit B<br>Wood<br>(lb/MMBtu) | Unit C<br>Wood<br>(lb/MMBtu) | Unit A<br>Wood<br>(lb/MMBtu)    | Unit B<br>Wood<br>(lb/MMBtu) | Unit C<br>Wood<br>(lb/MMBtu) |
| Particulate (TSP)               | 0.0084                       | 0.0039                       | 0.0073                       | 0.14                         | 0.08                         | 0.43                         | 0.138                        | 0.053                        | 0.078                        | 0.022                           | 0.013                        | 0.022                        |
| Particulate (PM <sub>10</sub> ) | 0.0058                       | 0.003                        | 0.0047                       | 0.02                         | 0.02                         | 0.05                         | 0.0266                       | 0.0148                       | 0.0158                       | 0.025                           | 0.0135                       | 0.023                        |
| Sulfur Dioxide                  | 0.063                        | 0.080                        | 0.039                        | 0.03                         | 0                            | 0                            | 0.031                        | 0.0217                       | 0.0357                       | 0.032                           | 0.019                        | 0.03                         |
| Nitrogen Oxides                 | 0.138                        | 0.14                         | 0.16                         | 0.13                         | 0.117                        | 0.14                         | 0.152                        | 0.15                         | 0.161                        | 0.18                            | 0.15                         | 0.15                         |
| Carbon Monoxide                 | 0.191                        | 0.181                        | 0.203                        | 0.14                         | 0.34                         | 0.35                         | 0.130                        | 0.290                        | 0.267                        | 0.16                            | 0.31                         | 0.22                         |
| VOCs                            | 0                            | 0.00021                      | 0.0012                       | 0.004                        | 0.005                        | 0.006                        | 0.012                        | 0.006                        | 0.006                        | 0.002                           | 0.014                        | 0.003                        |
| Arsenic                         |                              |                              |                              | 4.80E-05                     | 9.92E-05                     | 4.88E-04 <sup>a</sup>        | 1.53E-05                     | 9.05E-06                     | 1.60E-05                     | 1.13E-04                        | 2.50E-05                     | 3.78E-05                     |
| Beryllium                       | <3.62E-9                     | <3.28E-9                     | <4.25E-9                     | <4.28E-07                    | 5.09E-07                     | 6.09E-07 <sup>a</sup>        | <2.56E-07                    | <2.61E-07                    | <2.68E-07                    | <1.16E-07                       | <1.10E-07                    | <1.05E-07                    |
| Chromium                        |                              |                              |                              | 2.36E-05                     | 4.35E-05                     | 3.11E-04 <sup>a</sup>        | 8.72E-06                     | 2.12E-05                     | 1.11E-05                     | 4.12E-05                        | 2.04E-05                     | 2.71E-05                     |
| Copper                          |                              |                              |                              | 4.78E-05                     | 7.31E-05                     | 2.89E-04 <sup>a</sup>        | 2.60E-05                     | 1.61E-05                     | 3.08E-05                     | 3.76E-05                        | 1.42E-05                     | 2.13E-05                     |
| Lead                            | 2.43E-05                     | 1.23E-05                     | 2.77E-05                     | 3.00E-05                     | 8.40E-05                     | 4.00E-04 <sup>a</sup>        | 1.19E-05                     | 7.97E-06                     | 1.75E-05                     | 7.49E-05                        | 1.97E-05                     | 3.91E-05                     |
| Mercury                         | 9.75E-07                     | 9.60E-07                     | 1.70E-06                     | 1.20E-06                     | 1.50E-06                     | 3.60E-06                     | 6.25E-07                     | 4.28E-07                     | 6.52E-07                     | 8.07E-07                        | 8.09E-07                     | 7.41E-07                     |
| Fluorides                       | <2.97E-02                    | <1.74E-2                     | 2.00E-02                     | 9.38E-05                     | 5.07E-05                     | 1.13E-04                     | 1.50E-04                     | 1.60E-04                     | 3.10E-04                     | 7.00E-04                        | 6.00E-04                     | 6.00E-04                     |
| Sulfuric Acid Mist              | 1.10E-03                     | 1.40E-03                     | 1.40E-03                     |                              |                              |                              |                              |                              |                              |                                 |                              |                              |

Sources: Air Consulting Engineering, Inc., 2001; Golder, 2001

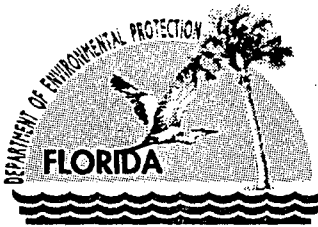
<sup>a</sup> Results may not be representative due to high PM emissions.



Table C-4. Summary of Okeelanta Power Stack Tests - Bagasse Firing

| Pollutant                       | Stack Testing: 1/22/99-2/5/99 |                      |                      | Stack Testing: 12/99 - 01/00 |                      |                      | Stack Testing: 01/3/01-01/23/01 |                      |                      |
|---------------------------------|-------------------------------|----------------------|----------------------|------------------------------|----------------------|----------------------|---------------------------------|----------------------|----------------------|
|                                 | Unit A<br>(lb/MMBtu)          | Unit B<br>(lb/MMBtu) | Unit C<br>(lb/MMBtu) | Unit A<br>(lb/MMBtu)         | Unit B<br>(lb/MMBtu) | Unit C<br>(lb/MMBtu) | Unit A<br>(lb/MMBtu)            | Unit B<br>(lb/MMBtu) | Unit C<br>(lb/MMBtu) |
| Particulate (TSP)               | 0.27                          | 0.12                 | 0.20                 | 0.221                        | 0.039                | 0.230                | 0.016                           | 0.021                | 0.01                 |
| Particulate (PM <sub>10</sub> ) | 0.02                          | 0.01                 | 0.02                 | 0.0282                       | 0.0092               | 0.0308               | 0.0153                          | 0.0232               | 0.0131               |
| Sulfur Dioxide                  | 0.02                          | 0                    | 0                    | 0.0011                       | 0.0080               | 0.0143               | 0.022                           | 0.019                | 0.014                |
| Nitrogen Oxides                 | 0.13                          | 0.12                 | 0.13                 | 0.138                        | 0.142                | 0.179                | 0.19                            | 0.17                 | 0.17                 |
| Carbon Monoxide                 | 0.16                          | 0.26                 | 0.28                 | 0.377                        | 0.354                | 0.299                | 0.24                            | 0.21                 | 0.24                 |
| Volatile Organic Compounds      | 0.01                          | 0.02                 | 0.007                | 0.010                        | 0.007                | 0.012                | 0.007                           | 0.008                | 0.01                 |
| Arsenic                         | 3.18E-05                      | 6.50E-06             | 4.92E-06             | 1.40E-06                     | 5.42E-06             | 8.46E-06             | 6.34E-05                        | 4.17E-05             | 4.40E-05             |
| Beryllium                       | <3.77E-07                     | <3.94E-07            | <1.25E-07            | <2.22E-07                    | <2.34E-07            | <2.52E-07            | <1.10E-07                       | <1.07E-07            | 1.76E-07             |
| Chromium                        | 9.33E-06                      | 5.85E-06             | 5.40E-06             | 2.15E-06                     | 4.54E-06             | 6.57E-06             | 5.22E-05                        | 2.91E-05             | 2.41E-05             |
| Copper                          | 2.55E-05                      | 1.03E-05             | 1.33E-05             | 8.67E-06                     | 1.43E-05             | 2.67E-05             | 2.38E-05                        | 2.23E-05             | 1.18E-05             |
| Lead                            | 2.00E-05                      | 7.30E-06             | 6.30E-06             | 3.41E-06                     | 6.68E-06             | 9.77E-06             | 3.81E-05                        | 4.76E-05             | 1.63E-05             |
| Mercury                         | 4.41E-07                      | 3.83E-07             | 5.41E-07             | 1.26E-07                     | 1.68E-07             | 5.34E-07             | 1.29E-06                        | 1.41E-06             | 8.38E-07             |
| Fluorides                       | 7.06E-05                      | 4.07E-05             | 3.04E-05             | 3.70E-04                     | 4.40E-04             | 3.90E-04             | 6.00E-04                        | 4.00E-04             | 3.00E-04             |

Sources: Air Consulting Engineering, Inc., 2001; Golder, 2001



Jeb Bush  
Governor

# Department of Environmental Protection

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

David B. Struhs  
Secretary

July 11, 2001

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Ricardo Lima, Vice President and General Manager  
Okeelanta Power Limited Partnership  
8001 U.S. Highway 27 South  
South Bay, FL 33493

Re: Request for Additional Information No. 2  
Project No. 0990332-014-AC (PSD-FL-196M)  
Okeelanta Power L.P. Cogeneration Plant  
Application to Modify CO and SO<sub>2</sub> Emissions Standards (and Additional Requests)

Dear Mr. Lima:

On June 12, 2001 the Department received a portion of the additional information requested regarding the application to revise the CO and SO<sub>2</sub> emissions standards for the biomass boilers at OkPLP's cogeneration plant. On June 21, 2001, the Department received additional changes to this information including revisions to the Department's application form. The application remains incomplete. In order to continue processing your application, the Department will need the additional information requested below. Should your response to any of the below items require new calculations, please submit the new calculations, assumptions, reference material and appropriate revised pages of the application form.

1. CO, NO<sub>x</sub>, and SO<sub>2</sub> Data

As originally requested, please provide a detailed description of the method used to calculate the heat input for use in the compliance averages. How is the volumetric flow rate determined? Does the volumetric flow rate include the contribution due to urea injection? What were the tested thermal efficiencies for each boiler?

2. Elevated CO Emissions

How many excursions of the existing 30-day rolling average for CO emissions have occurred for each boiler? How many months have these boilers operated under the current standard?

OkPLP has not provided any information that suggests "good operating practices" were being used during the high CO incidents. If bagasse fuel typically contains 50% moisture by weight and the boilers can operate in compliance with the CO standard, why wasn't more bagasse being fired to offset the "wet" wood materials? Please discuss the feasibility of providing a three-day storage area for "dry" biomass that could be commingled with "wet" biomass in order to comply with the current standards. This storage area would be protected from rain (or watering) and confined to prevent fugitive emissions.

A recent permit revision approved the use of natural gas as a supplemental fuel. Please discuss the co-firing natural gas with a "wet" biomass fuel to increase combustion efficiency and reduce CO emissions.

The response indicates that OkPLP has implemented an improved combustion control system using computer assisted air distribution modeling, which has lead more efficient tuning of air and fuel control instrumentation. These improvements have already resulted in lower CO emissions. The Department believes this is a more reasonable approach to correcting the elevated CO emissions as opposed to increasing the emissions standards.

Also, OkPLP installed new rotary pocket style wood feeders in 1999/2000 to provide an effective thermal seal that minimizes tramp air into the boiler. Did the Department approve this change? Did the hourly fuel feed rate or maximum heat input rate increased as a result of this change?

*"More Protection, Less Process"*

*Printed on recycled paper.*

3. Elevated SO<sub>2</sub> Emissions

How many excursions of the existing 30-day rolling average for SO<sub>2</sub> emissions have occurred for each boiler? How many months have these boilers operated under this standard? What measures did OkPLP take to prevent exceeding the SO<sub>2</sub> standards? The response indicates that more frequent fuel sampling is now conducted. How is this information used to adjust operations in order to comply with the current standards?

Has OkPLP evaluated the option of using the *existing activated carbon injection system* to inject an activated carbon /lime product (or just lime) for additional SO<sub>2</sub> control? Note that this control would only need to be used to ensure compliance with the current SO<sub>2</sub> standard. Costs would be very different from the analysis presented in the initial application.

4. CO Modeling Analysis

Please explain why the point source inventory in the revised analysis did not include substantial CO emissions from Pratt and Whitney's new rocket testing facility or conduct a revised modeling analysis to include these additional emissions.

As originally requested, please provide the modeling files for our review.

5. SO<sub>2</sub> Modeling Analysis

As stated in the application, the requested change in the SO<sub>2</sub> emissions standard results in a net actual emissions increase of 1021 tons per year, which clearly exceeds the PSD significant emissions rate. The initial analysis is more than 8 years old and is based on a fuel that was never fired. Please provide the revised air quality modeling analysis for SO<sub>2</sub> or revise your request. As mentioned in the Department's initial request, it is inappropriate to use the "potential emissions" for a fuel (coal) that is no longer authorized and has never been fired as emissions decreases to offset increases in actual emissions from the proposed project.

6. Coal Firing: The response indicates that OkPLP recognizes that coal is no longer an authorized fuel. No additional questions.

7. Other Requests: The Department requests information regarding OkPLP's additional requests.

a. *Stack testing for CO, NO<sub>x</sub>, SO<sub>2</sub>, visible emissions, fluorides, beryllium, arsenic, chromium, and copper*:

- The PSD permit will be revised make it clear that compliance with the CO, NO<sub>x</sub>, SO<sub>2</sub>, and opacity standards will be demonstrated based on the continuous monitor data. However, EPA Method 9 observations shall also remain a valid means of determining compliance with the opacity standard.
- Please summarize the fluoride and beryllium emissions with and without coal firing. Please revise the PSD applicability analysis for these pollutants. The Department will consider the request to remove the testing requirements based on this information.
- Please provide a summary identifying the emissions rates of arsenic, chromium, and copper for each boiler and for each test conducted. The Department will consider the request to remove periodic testing for these pollutants based on this information.

b. *Emissions limits for lead, mercury, fluorides, and beryllium*:

- The Department will consider the revised lead and mercury standards based on the revised PSD applicability analysis provided and the absence of coal firing.
- As previously mentioned, please revise the PSD applicability analysis for these pollutants. The Department will consider the request to remove the testing requirements based on this information.

c. *Eliminate the requirement for a carbon injection system*: Based on the absence of coal firing, the Department will consider removing the requirement to operate the activated carbon injection system when firing biomass, distillate oil, or natural gas and complying with the (possibly revised) lead and mercury emissions standards.

d. *Bubbling of lead and mercury limits*: The Department does not believe the concept of "bubbling" the lead and mercury emissions standards is appropriate. This appears to be similar to a "plant-wide applicability limit", which has not yet been approved through the New Source Review reforms. Please comment.

Due to the extensive changes requested, please provide a new summary of the air quality analysis (Class I and Class II impacts) for this project. For each PSD pollutant, please include the modeled emissions rate (lb/hour), fuel used, exhaust temperature, predicted maximum ambient concentrations, and appropriate regulatory level for each averaging period.

Please include any revised impacts conducted since the original permit was issued. If no changes have been made since the original application for a given pollutant, data from the original analysis may be used.

The Department will resume processing your application after receipt of the requested information. Rule 62-4.050(3), F.A.C. requires that all applications for a Department permit must be certified by a professional engineer registered in the State of Florida. This requirement also applies to responses to Department requests for additional information of an engineering nature. Material changes to the application should also be accompanied by a new certification statement by the authorized representative or responsible official. Permit applicants are advised that Rule 62-4.055(1), F.A.C. now requires applicants to respond to requests for information within 90 days. If there are any questions, please call me at 850/414-7268.

Sincerely,



Jeffery F. Koerner, P.E.  
New Source Review Section

AAL/jfk

cc: Mr. Ricardo Lima, OkPLP  
Mr. James Meriwether, OkPLP  
Mr. David Buff, Golder Associates  
Mr. Ron Blackburn, SD  
Mr. Darrel Graziani, PBCHD  
Mr. Gregg Worley, EPA Region 4  
Mr. John Bunyak, NPS

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- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Ricardo Lima  
 Vice President & Gen. Mgr.  
 Okelanta Power Limited  
 Partnership  
 8001 U.S. Highway 27 South  
 South Bay, FL 33493

2. Article Number (Copy from service label)  
 7000 0600 0026 4129 8306

**COMPLETE THIS SECTION ON DELIVERY**

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ANAYLA KINMAN 7/17/01

C. Signature

X *Anayla Kinman*  Agent  Addressee

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If YES, enter delivery address below:  No

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 S Bay, FL 33493-0008

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Recipient's Name (Please Print Clearly) (to be completed by mailer)  
 Mr. Ricardo Lima

Street, Apt. No., or PO Box No.  
 8001 U.S. Highway 27 South

City, State, ZIP+4  
 South Bay, FL 33493

PS Form 3800, February 2000 See Reverse for Instructions

**Golder Associates Inc.**

6241 NW 23rd Street, Suite 500  
Gainesville, FL 32653-1500  
Telephone (352) 336-5600  
Fax (352) 336-6603



June 19, 2001

RECEIVED 0037584

JUN 21 2001

BUREAU OF AIR REGULATION

Florida Department of Environmental Protection  
Bureau of Air Regulation  
2600 Blair Stone Road  
Tallahassee, FL 32399-2400

Attention: Mr. Jeff Koerner, P.E.

RE: Okeelanta Power Cogeneration Facility  
ARMS Facility ID No. 0990332  
Project No. 0990332-014-AC/PSD-FL-196M  
Application to Modify CO and SO<sub>2</sub> Emissions Standards

Dear Mr. Koerner:

In a letter dated June 8, 2001, Golder Associates Inc. submitted a response to the Department regarding Okeelanta Power's application to modify its CO and SO<sub>2</sub> emission standards. The application form and two of the tables submitted contained minor typographical errors. These errors affected the footnotes on the tables and the annual emissions for sulfuric acid mist contained in the tables and the application form.

Revised application form pages and tables from the application are attached. Please call if there are any questions.

Sincerely,  
GOLDER ASSOCIATES INC.

*David A. Buff*  
David A. Buff, P.E., Q.E.P.  
Principal Engineer  
Florida P.E. #19011  
SEAL  
DB/fwh

cc: Gus Cepero  
James Meriwether  
David Dee  
Bill Tarr  
*C. Holladay*  
*J. Goldman, SED*  
*D. Harrison, PBC/H*  
EPA  
NPS

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
**(Regulated Emissions Units -**  
**Emissions-Limited and Preconstruction Review Pollutants Only)**

Potential/Fugitive Emissions

|   |   |  |
|---|---|--|
| 1. Pollutant Emitted:<br><b>SAM</b>   | 2. Total Percent Efficiency of Control:                           |  |
| 3. Potential Emissions:<br><b>13.2</b> lb/hour <b>19.10</b> tons/year   | 4. Synthetically Limited? [ <input checked="" type="checkbox"/> ] |  |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1    [ ] 2    [ ] 3    _____ to _____ tons/year  |   |  |
| 6. Emission Factor: <b>0.0184 lb/MMBtu</b><br>Reference: <b>AP-42</b>   | 7. Emissions Method Code:   |  |
| 8. Calculation of Emissions (limit to 600 characters):<br><br><b>Emission factor based on AP-42 Section 1.3 for fuel oil firing, which shows approximately 5% of SO<sub>2</sub> emissions are emitted as SO<sub>3</sub>. Then SO<sub>3</sub> is converted to H<sub>2</sub>SO<sub>4</sub> by multiplying by 98/80.</b><br><b>Emission factor for SO<sub>2</sub> emission is 0.3 lb/MMBtu (3-hr max).</b><br><b>0.3 lb/MMBtu x 0.05 x 98/80 = 0.0184 lb/MMBtu</b><br><b>0.0184 lb/MMBtu x 715 MMBtu/hr = 13.16 lb/hr</b><br><b>Annual emission factor = 0.1 lb/MMBtu x 0.05 x 98/80 = 0.0061 lb/MMBtu</b><br><b>0.0061 lb/MMBtu x 715 MMBtu/hr x 8760 hr/yr x 1 ton/2000 lb = 19.10 TPY</b> |   |  |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):<br><br><b>Based on biomass firing, 35.08 TPY total for all boilers.</b>  |   |  |

Allowable Emissions Allowable Emissions 1 of 2

|  |  |  |
|--|--|--|
| 1. Basis for Allowable Emissions Code:<br><b>OTHER</b>   | 2. Future Effective Date of Allowable Emissions:                                 |  |
| 3. Requested Allowable Emissions and Units:<br><b>0.0184 lb/MMBtu</b>  | 4. Equivalent Allowable Emissions:<br><b>13.2</b> lb/hour <b>19.10</b> tons/year |  |
| 5. Method of Compliance (limit to 60 characters):<br><br><b>EPA Method 8 once every 5 years.</b>                             |  |  |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><br><b>Based on biomass firing.</b> |  |  |

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
 (Regulated Emissions Units -  
 Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

|   |   |
|---|---|
| 1. Pollutant Emitted:<br><b>SAM</b>   | 2. Total Percent Efficiency of Control:                           |
| 3. Potential Emissions:<br><b>13.2</b> lb/hour <b>19.10</b> tons/year   | 4. Synthetically Limited? [ <input checked="" type="checkbox"/> ] |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1      [ ] 2      [ ] 3      _____ to _____ tons/year  |   |
| 6. Emission Factor: <b>0.0184 lb/MMBtu</b><br>Reference: <b>AP-42</b>   | 7. Emissions Method Code:   |
| 8. Calculation of Emissions (limit to 600 characters):<br><br><b>Emission factor based on AP-42 Section 1.3 for fuel oil firing, which shows approximately 5% of SO<sub>2</sub> emissions are emitted as SO<sub>3</sub>. Then SO<sub>3</sub> is converted to H<sub>2</sub>SO<sub>4</sub> by multiplying by 98/80.</b><br><b>Emission factor for SO<sub>2</sub> emission is 0.3 lb/MMBtu (3-hr max).</b><br><b>0.3 lb/MMBtu x 0.05 x 98/80 = 0.0184 lb/MMBtu</b><br><b>0.0184 lb/MMBtu x 715 MMBtu/hr = 13.16 lb/hr</b><br><b>Annual emission factor = 0.1 lb/MMBtu x 0.05 x 98/80 = 0.0061 lb/MMBtu</b><br><b>0.0061 lb/MMBtu x 715 MMBtu/hr x 8760 hr/yr x 1 ton/2000 lb = 19.10 TPY</b> |   |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):<br><br><b>Based on biomass firing, 35.08 TPY total for all boilers.</b>  |   |

Allowable Emissions Allowable Emissions 1 of 2

|  |  |
|--|--|
| 1. Basis for Allowable Emissions Code:<br><b>OTHER</b>   | 2. Future Effective Date of Allowable Emissions:                                 |
| 3. Requested Allowable Emissions and Units:<br><b>0.0184 lb/MMBtu</b>  | 4. Equivalent Allowable Emissions:<br><b>13.2</b> lb/hour <b>19.10</b> tons/year |
| 5. Method of Compliance (limit to 60 characters):<br><br><b>EPA Method 8 once every 5 years.</b>                             |  |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><br><b>Based on biomass firing.</b> |  |



**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
 (Regulated Emissions Units -  
 Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

|   |  |   |  |
|---|--|---|--|
| 1. Pollutant Emitted:<br><b>SAM</b>   |  | 2. Total Percent Efficiency of Control:                           |  |
| 3. Potential Emissions:<br><b>13.2</b> lb/hour <b>19.10</b> tons/year   |  | 4. Synthetically Limited? [ <input checked="" type="checkbox"/> ] |  |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1      [ ] 2      [ ] 3      _____ to _____ tons/year  |  |   |  |
| 6. Emission Factor: <b>0.0184 lb/MMBtu</b><br>Reference: <b>AP-42</b>   |  | 7. Emissions Method Code:   |  |
| 8. Calculation of Emissions (limit to 600 characters):<br><br><b>Emission factor based on AP-42 Section 1.3 for fuel oil firing, which shows approximately 5% of SO<sub>2</sub> emissions are emitted as SO<sub>3</sub>. Then SO<sub>3</sub> is converted to H<sub>2</sub>SO<sub>4</sub> by multiplying by 98/80.</b><br><b>Emission factor for SO<sub>2</sub> emission is 0.3 lb/MMBtu (3-hr max).</b><br><b>0.3 lb/MMBtu x 0.05 x 98/80 = 0.0184 lb/MMBtu</b><br><b>0.0184 lb/MMBtu x 715 MMBtu/hr = 13.16 lb/hr</b><br><b>Annual emission factor = 0.1 lb/MMBtu x 0.05 x 98/80 = 0.0061 lb/MMBtu</b><br><b>0.0061 lb/MMBtu x 715 MMBtu/hr x 8760 hr/yr x 1 ton/2000 lb = 19.10 TPY</b> |  |   |  |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):<br><br><b>Based on biomass firing, 35.08 TPY total for all boilers.</b>  |  |   |  |

Allowable Emissions Allowable Emissions  1  of  2

|  |  |  |  |
|--|--|--|--|
| 1. Basis for Allowable Emissions Code:<br><b>OTHER</b>   |  | 2. Future Effective Date of Allowable Emissions:                                 |  |
| 3. Requested Allowable Emissions and Units:<br><b>0.0184 lb/MMBtu</b>  |  | 4. Equivalent Allowable Emissions:<br><b>13.2</b> lb/hour <b>19.10</b> tons/year |  |
| 5. Method of Compliance (limit to 60 characters):<br><br><b>EPA Method 8 once every 5 years</b>                              |  |  |  |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><br><b>Based on biomass firing.</b> |  |  |  |

Table 2-4. Maximum Annual Emissions for Single Boiler at Okeelanta Power L.P. (Revised 6/19/01)

| Regulated<br>Pollutant                   | Biomass                          |   |                              | Alternate Fuel                   |   |                              | Total<br>Annual<br>Emissions<br>(TPY) |
|--|----------------------------------|---|------------------------------|----------------------------------|---|------------------------------|---------------------------------------|
|  | Emission<br>Factor<br>(lb/MMBtu) | Activity<br>Factor<br>(10 <sup>12</sup> Btu/yr) | Annual<br>Emissions<br>(TPY) | Emission<br>Factor<br>(lb/MMBtu) | Activity<br>Factor<br>(10 <sup>12</sup> Btu/yr) | Annual<br>Emissions<br>(TPY) |                                       |
| <u>100% Biomass</u>                      |                                  |   |                              |                                  |   |                              |                                       |
| Particulate (TSP)                        | 0.03                             | 6.263   | 93.95                        | --                               | --  | --                           | 93.95 a                               |
| Particulate (PM <sub>10</sub> )          | 0.03                             | 6.263   | 93.95                        | --                               | --  | --                           | 93.95 a                               |
| Sulfur dioxide                           | 0.10                             | 6.263   | 313.15                       | --                               | --  | --                           | 313.15 a                              |
| Nitrogen oxides                          | 0.15                             | 6.263   | 469.73                       | --                               | --  | --                           | 469.73 a                              |
| Carbon monoxide                          | 0.35                             | 6.263   | 1,096.03                     | --                               | --  | --                           | 1,096.03 a                            |
| VOC                                      | 0.06                             | 6.263   | 187.89                       | --                               | --  | --                           | 187.89 a                              |
| Lead                                     | 1.6E-04                          | 6.263   | 0.501                        | --                               | --  | --                           | 0.501 a                               |
| Mercury                                  | 5.43E-06                         | 6.263   | 0.0170                       | --                               | --  | --                           | 0.0170 a                              |
| Beryllium                                | --                               | --  | --                           | --                               | --  | --                           | --                                    |
| Fluorides                                | 7.00E-04                         | 6.263   | 2.19                         | --                               | --  | --                           | 2.19 a                                |
| Sulfuric acid mist                       | 0.0061                           | 6.263   | 19.10                        | --                               | --  | --                           | 19.10 a                               |
| <u>75.1% Biomass / 24.9% Fuel Oil</u>    |                                  |   |                              |                                  |   |                              |                                       |
| Particulate (TSP)                        | 0.03                             | 4.428   | 66.42                        | 0.03                             | 1.468   | 22.02                        | 88.44                                 |
| Particulate (PM <sub>10</sub> )          | 0.03                             | 4.428   | 66.42                        | 0.03                             | 1.468   | 22.02                        | 88.44                                 |
| Sulfur dioxide                           | 0.10                             | 4.428   | 221.40                       | 0.05                             | 1.468   | 36.70                        | 258.10                                |
| Nitrogen oxides                          | 0.15                             | 4.428   | 332.10                       | 0.15                             | 1.468   | 110.10                       | 442.20                                |
| Carbon monoxide                          | 0.35                             | 4.428   | 774.90                       | 0.35                             | 1.468   | 256.90                       | 1,031.80                              |
| VOC                                      | 0.06                             | 4.428   | 132.84                       | 0.03                             | 1.468   | 22.02                        | 154.86                                |
| Lead                                     | 1.6E-04                          | 4.428   | 0.354                        | 8.9E-07                          | 1.468   | 0.0007                       | 0.355                                 |
| Mercury                                  | 5.43E-06                         | 4.428   | 0.0120                       | 2.4E-06                          | 1.468   | 0.0018                       | 0.0138                                |
| Beryllium                                | --                               | --  | --                           | 3.5E-07                          | 1.468   | 0.00026                      | 0.00026 a                             |
| Fluorides                                | 7.00E-04                         | 4.428   | 1.55                         | 6.27E-06                         | 1.468   | 0.0046                       | 1.5544                                |
| Sulfuric acid mist                       | 0.0061                           | 4.428   | 13.51                        | 0.0015                           | 1.468   | 1.10                         | 14.61                                 |
| <u>75.1% Biomass / 24.9% Natural Gas</u> |                                  |   |                              |                                  |   |                              |                                       |
| Particulate (TSP)                        | 0.03                             | 4.428   | 66.42                        | 0.0073                           | 1.468   | 5.36                         | 71.78                                 |
| Particulate (PM <sub>10</sub> )          | 0.03                             | 4.428   | 66.42                        | 0.0073                           | 1.468   | 5.36                         | 71.78                                 |
| Sulfur dioxide                           | 0.10                             | 4.428   | 221.40                       | 0.00058                          | 1.468   | 0.43                         | 221.83                                |
| Nitrogen oxides                          | 0.15                             | 4.428   | 332.10                       | 0.15                             | 1.468   | 110.10                       | 442.20                                |
| Carbon monoxide                          | 0.35                             | 4.428   | 774.90                       | 0.08                             | 1.468   | 58.72                        | 833.62                                |
| VOC                                      | 0.06                             | 4.428   | 132.84                       | 0.0053                           | 1.468   | 3.89                         | 136.73                                |
| Lead                                     | 1.6E-04                          | 4.428   | 0.354                        | 4.8E-07                          | 1.468   | 0.0004                       | 0.355                                 |
| Mercury                                  | 5.43E-06                         | 4.428   | 0.0120                       | 2.5E-07                          | 1.468   | 0.0002                       | 0.0122                                |
| Beryllium                                | --                               | --  | --                           | 1.2E-08                          | 1.468   | 0.00001                      | 0.00001                               |
| Fluorides                                | 7.00E-04                         | 4.428   | 1.55                         | --                               | --  | --                           | 1.5498                                |
| Sulfuric acid mist                       | 0.0061                           | 4.428   | 13.51                        | 3.55E-05                         | 1.468   | 0.03                         | 13.53                                 |

<sup>a</sup> Denotes maximum annual emissions for any fuel scenario.

Note: No emissions of total reduced sulfur, asbestos, or vinyl chloride are expected.

Fuel type percentages are based on heat input.

Table 2-5. Maximum Annual Emissions for Okeelanta Power Cogeneration Facility (total all boilers, Revised 6/19/01)

| Regulated<br>Pollutant                   | Biomass                          |   |                              | Alternate Fuel                   |   |                              | Total<br>Annual<br>Emissions<br>(TPY) |
|--|----------------------------------|---|------------------------------|----------------------------------|---|------------------------------|---------------------------------------|
|  | Emission<br>Factor<br>(lb/MMBtu) | Activity<br>Factor<br>(10 <sup>12</sup> Btu/yr) | Annual<br>Emissions<br>(TPY) | Emission<br>Factor<br>(lb/MMBtu) | Activity<br>Factor<br>(10 <sup>12</sup> Btu/yr) | Annual<br>Emissions<br>(TPY) |                                       |
| <u>100% Biomass</u>                      |                                  |   |                              |                                  |   |                              |                                       |
| Particulate (TSP)                        | 0.03                             | 11.500  | 172.50                       | --                               | --  | --                           | 172.50 a                              |
| Particulate (PM <sub>10</sub> )          | 0.03                             | 11.500  | 172.50                       | --                               | --  | --                           | 172.50 a                              |
| Sulfur dioxide                           | 0.10                             | 11.500  | 575.00                       | --                               | --  | --                           | 575.00 a                              |
| Nitrogen oxides                          | 0.15                             | 11.500  | 862.50                       | --                               | --  | --                           | 862.50 a                              |
| Carbon monoxide                          | 0.35                             | 11.500  | 2,012.50                     | --                               | --  | --                           | 2,012.50 a                            |
| VOC                                      | 0.06                             | 11.500  | 345.00                       | --                               | --  | --                           | 345.00 a                              |
| Lead                                     | 1.6E-04                          | 11.500  | 0.920                        | --                               | --  | --                           | 0.920 a                               |
| Mercury                                  | 5.43E-06                         | 11.500  | 0.0312                       | --                               | --  | --                           | 0.031 a                               |
| Beryllium                                | --                               | --  | --                           | --                               | --  | --                           | --                                    |
| Fluorides                                | 7.00E-04                         | 11.500  | 4.03                         | --                               | --  | --                           | 4.03 a                                |
| Sulfuric acid mist                       | 0.0061                           | 11.500  | 35.08                        | --                               | --  | --                           | 35.08 a                               |
| <u>75.1% Biomass / 24.9% Fuel Oil</u>    |                                  |   |                              |                                  |   |                              |                                       |
| Particulate (TSP)                        | 0.03                             | 8.130   | 121.95                       | 0.03                             | 2.696   | 40.44                        | 162.39                                |
| Particulate (PM <sub>10</sub> )          | 0.03                             | 8.130   | 121.95                       | 0.03                             | 2.696   | 40.44                        | 162.39                                |
| Sulfur dioxide                           | 0.10                             | 8.130   | 406.50                       | 0.05                             | 2.696   | 67.40                        | 473.90                                |
| Nitrogen oxides                          | 0.15                             | 8.130   | 609.75                       | 0.15                             | 2.696   | 202.20                       | 811.95                                |
| Carbon monoxide                          | 0.35                             | 8.130   | 1,422.75                     | 0.35                             | 2.696   | 471.80                       | 1,894.55                              |
| VOC                                      | 0.06                             | 8.130   | 243.90                       | 0.03                             | 2.696   | 40.44                        | 284.34                                |
| Lead                                     | 1.6E-04                          | 8.130   | 0.650                        | 8.9E-07                          | 2.696   | 0.0012                       | 0.652                                 |
| Mercury                                  | 5.43E-06                         | 8.130   | 0.0221                       | 2.4E-06                          | 2.696   | 0.0032                       | 0.025                                 |
| Beryllium                                | --                               | --  | --                           | 3.5E-07                          | 2.696   | 0.00047                      | 0.00047 a                             |
| Fluorides                                | 7.00E-04                         | 8.130   | 2.85                         | 6.27E-06                         | 2.696   | 0.0085                       | 2.854                                 |
| Sulfuric acid mist                       | 0.0061                           | 8.130   | 24.80                        | 0.0015                           | 2.696   | 2.02                         | 26.82                                 |
| <u>75.1% Biomass / 24.9% Natural Gas</u> |                                  |   |                              |                                  |   |                              |                                       |
| Particulate (TSP)                        | 0.03                             | 8.130   | 121.95                       | 0.0073                           | 2.696   | 9.84                         | 131.79                                |
| Particulate (PM <sub>10</sub> )          | 0.03                             | 8.130   | 121.95                       | 0.0073                           | 2.696   | 9.84                         | 131.79                                |
| Sulfur dioxide                           | 0.10                             | 8.130   | 406.50                       | 0.00058                          | 2.696   | 0.78                         | 407.28                                |
| Nitrogen oxides                          | 0.15                             | 8.130   | 609.75                       | 0.15                             | 2.696   | 202.20                       | 811.95                                |
| Carbon monoxide                          | 0.35                             | 8.130   | 1,422.75                     | 0.08                             | 2.696   | 107.84                       | 1,530.59                              |
| VOC                                      | 0.06                             | 8.130   | 243.90                       | 0.0053                           | 2.696   | 7.14                         | 251.04                                |
| Lead                                     | 1.6E-04                          | 8.130   | 0.650                        | 4.8E-07                          | 2.696   | 0.0006                       | 0.651                                 |
| Mercury                                  | 5.43E-06                         | 8.130   | 0.0221                       | 2.5E-07                          | 2.696   | 0.0003                       | 0.022                                 |
| Beryllium                                | --                               | --  | --                           | 1.2E-08                          | 2.696   | 0.00002                      | 0.00002                               |
| Fluorides                                | 7.00E-04                         | 8.130   | 2.85                         | --                               | --  | --                           | 2.846                                 |
| Sulfuric acid mist                       | 0.0061                           | 8.130   | 24.80                        | 3.55E-05                         | 2.696   | 0.05                         | 24.84                                 |

<sup>a</sup> Denotes maximum annual emissions for any fuel scenario.

Note: No emissions of total reduced sulfur, asbestos, or vinyl chloride are expected.

**Golder Associates Inc.**

6241 NW 23rd Street, Suite 500  
Gainesville, FL 32653-1500  
Telephone (352) 336-5600  
Fax (352) 336-6603

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JUN 12 2001



June 8, 2001

BUREAU OF AIR REGULATION

0037584

Florida Department of Environmental Protection  
Bureau of Air Regulation  
2600 Blair Stone Road  
Tallahassee, FL 32399-2400

Attention: Mr. Jeff Koerner, P.E.

RE: Okeelanta Power Cogeneration Facility  
ARMS Facility ID No. 0990332  
Project No. 0990332-014-AC/PSD-FL-196M  
Application to Modify CO and SO<sub>2</sub> Emissions Standards

Dear Mr. Koerner:

Okeelanta Power Limited Partnership (OkPLP) has received the Department's letter dated January 25, 2001, requesting additional information in regards to modify the CO and SO<sub>2</sub> emissions standards for the three cogeneration boilers. Each of the Department's questions are responded to below, in the same order as they appear in the Department's letter.

1. **Comment:** For each boiler during the period of 05/01/99 through 12/31/00, please provide the following information in a tabled format. Provide data for each day during a one-month period representative of operations before the violations, during the violations, and after the violations.
  - a. 24-hour averages for CO, NO<sub>x</sub>, and SO<sub>2</sub> emissions. If possible, also provide line chart representing the 24-hour averages of each pollutant (on the same chart) over the entire period separately for each boiler.
  - b. Daily average of tons of bagasse fired, tons of wood fired, gallons of oil fired, and the bagasse/wood firing ratio.
  - c. The daily average steam production, power production, stack gas moisture, stack gas oxygen content; and the F-factor used.

**In detail, please describe the method of calculating the heat input for use in the compliance averages. What is the thermal efficiency of each boiler? Has the thermal efficiency been tested for each boiler?**

**Response:** All data requested are provided in Appendix A. The information for Boiler A is provided in Table 1 (for the period of CO violations) and Table 3 (for SO<sub>2</sub> violations). Line charts of the data are provided in Figures 1 and 2. Boiler B data is provided in Table 4 and Figure 3 for the period of SO<sub>2</sub> violations (no CO violations occurred). The information for Boiler C is provided in Table 2 (for the period of CO violations) and Table 5 (for SO<sub>2</sub> violations), and in Figures 4 and 5.

The heat input to the boilers are determined based a carbon based F-Factor of 1,850 scf/MMBtu.

The design thermal efficiency of the boilers is 68 percent when burning biomass. A thermal efficiency test was conducted on the boilers during acceptance testing.

2. **Comment: Okeelanta speculates that the increased CO emissions result from a high moisture content of the biomass fuel due to increased rainfall. The data presented does not appear to establish any conclusive correlation between rainfall and CO emissions. However, does Okeelanta maintain a dry source of biomass fuel or attempt to prevent some biomass from being rained upon? Has Okeelanta made any provisions to attempt drying the fuel before firing in the cogeneration boilers? Please provide a list of actions taken by Okeelanta to adjust operations in response to gradually increasing CO emissions. Has Okeelanta researched changes in equipment or processes that could be implemented to correct the elevated levels of CO emissions?**

**Response:** Operating experience has shown that periods of high rainfall are generally followed by periods of elevated CO emissions. For example, Hurricane Floyd affected the area on September 14 and 15, 1999. In October 1999, Boiler C exceeded the thirty-day rolling average for CO. In November 1999, Boiler A exceeded the thirty-day rolling average for CO. This is an indication that rainfall from the hurricane event affected CO emissions at the facility.

The OkPLP Cogeneration Facility has approximately 34 acres dedicated for fuel storage: 19 acres for wood fuel and 15 acres for bagasse fuel. In areas of this size it is not practical to store fuel under controlled conditions. The facility receives wood fuel from a number of vendors within a 100-mile radius of the facility. Bagasse fuel is received from the adjacent Okeelanta Sugar Mill. During the year 2000, wood fuel averaged approximately 34.51 percent moisture as received and bagasse approximately 52.18 percent moisture as received. Wood fuel can range from 20 percent to 48 percent moisture and bagasse from 52 percent to 55 percent moisture. Therefore, the fuel is inherently wet when received by the facility. The fuel storage areas are also wetted to control dusting during dry conditions. During normal operating conditions, approximately 6,500 lbs/hr of water contained in the aqueous urea solution is injected into each furnace for NO<sub>x</sub> control, further adding to the total moisture entering the furnace.

No attempts have been made to dry the fuel prior to firing in the boilers. Although drying of wood fuel using a portion of the flue gases is feasible, this would require significant modifications at the facility and result in very high costs. Drying of bagasse fuel prior to firing has not been demonstrated, and has inherent problems including fire and explosion potential, handling and transport of dry bagasse, condensation and corrosion, etc. Therefore, this option is not considered technically or economically feasible.

Control of CO emissions is accomplished by combustion control. The facility has recently implemented an improved combustion control system, which also improves plant efficiency. Computer assisted air distribution modeling has been utilized at the facility to enhance combustion control. This modeling has led to more efficient tuning of air and fuel control instrumentation. Also, significant improvements in combustion control and reductions in CO have been realized by the installation of new rotary pocket style wood feeders in 1999-2000. This type fuel feeder provides an effective air seal to minimize tramp air into the boiler. In addition, a new type of water level control for the bottom ash system is currently being evaluated. A stable water level in the bottom ash system also prevents tramp air from entering the boilers.

Although these improvements have already resulted in lower CO emissions, it does not guarantee that the current CO emission limit based on a 30-day rolling average will be met at all times in the future, especially during high rainfall periods.

- 3. Comment: From the information provided, the samples of bagasse appear to be within the range of sulfur contents stated in the initial application. Most samples of the wood materials show sulfur contents within the range stated in the initial application. However, several samples of the wood materials show sulfur contents as much as two to three times higher than expected. Please describe the plan for sampling the biomass fuels and analyzing for the sulfur content. When a sample indicates an unusually high sulfur content, what provisions does Okeelanta make to separate the shipment and proportionally blend with lower sulfur biomass to comply with the SO<sub>2</sub> standards? What other methods are used or could be used to adjust operations for biomass fuels detected to have high sulfur contents? Has Okeelanta evaluated the option of using a lime/activated carbon product for additional SO<sub>2</sub> control?**

**The data presented does not conclusively show that the addition of dust collectors resulted in higher SO<sub>2</sub> emissions due to less SO<sub>2</sub> adsorption. Please sample the bottom ash from a cogeneration boiler for both sulfur and unburned carbon. Compare the results with those from a cogeneration boiler prior to the dust collectors (or a sugar mill bagasse boiler).**

**Response:** The initial application states that the maximum sulfur content of bagasse (sulfur in wood waste is similar, reference AP-42) is 0.022 percent on a wet basis. This sulfur content was used to calculate the SO<sub>2</sub> maximum emission factor of 0.10 lbs/MMBtu (24-hour average). In the Golder Associates "Application to Modify CO/SO<sub>2</sub> Emission Limits" (December 2000) the Summary of Wood Fuel Analyses shows the average sulfur content for wood materials to be 0.07 percent (wet basis) and the Summary of Bagasse Fuel Analyses show the average sulfur content of bagasse materials to be 0.03 percent (wet basis). These are both higher than the sulfur content shown in the initial application (0.022 percent), which was used to calculate the maximum SO<sub>2</sub> emission factor.

The OkPLP Cogeneration facility's permit limit for SO<sub>2</sub> is based on a thirty-day rolling average of 0.02 lbs/MMBtu for bagasse and 0.05 lbs/MMBtu for wood. Specific Condition 20 of the air permit states that SO<sub>2</sub> emission limits for wood and bagasse are subject to revision pursuant to facility stack testing.

The OkPLP Cogeneration Facility burns an average of 70 tons/hour of biomass fuel per boiler. Two to four "boiler ready" wood fuel samples are collected each week and analyzed for sulfur content. This sampling schedule was implemented following the SO<sub>2</sub> excess emission events. These samples are collected from the wood material that has been blended and considered "boiler ready" fuel. Sampling each truckload of biomass or segregating deliveries is not practical due to the large number of truckloads of material received at the facility each week.

OkPLP did investigate a dry lime injection system during the initial PSD permitting of the facility. This analysis showed that such a system would not be cost effective, based on total annual SO<sub>2</sub> emissions of 1,154 TPY. OkPLP is currently proposing to lower the allowable annual SO<sub>2</sub> emissions to 575 TPY by eliminating the ability to fire coal (based on 0.1 lb/MMBtu, 30-day rolling average and  $11.5 \times 10^{12}$  Btu/yr). This renders an add-on control system such as dry lime injection even more costly.

4. **Comment:** The following table is presented to document the original CO standards, subsequent changes, and current request:

**Table 6. Summary of CO Standards**

| Year    | Average  | Biomass       | Oil           | Coal          |
|---------|----------|---------------|---------------|---------------|
| 1993    | 8-hour   | 0.35 lb/MMBtu | 0.2 lb/MMBtu  | 0.2 lb/MMBtu  |
| 1997    | 24-hour  | 0.35 lb/MMBtu | 0.35 lb/MMBtu | 0.35 lb/MMBtu |
| 1999    | 30-day   | 0.35 lb/MMBtu | 0.35 lb/MMBtu | 0.35 lb/MMBtu |
| Request | 12-month | 0.35 lb/MMBtu | 0.35 lb/MMBtu | 0.35 lb/MMBtu |

- a. The Department notes that the Ambient Air Quality Standards (AAQS) are defined for CO in terms of 1-hour and 8-hour averages. The initial Ambient Air Quality Analysis was based on maximum emissions rates reflecting these averaging periods. Please review the available operating data and provide the expected maximum CO emission rates based on the 1-hour and 8-hour averages from the CO CEMS. Provide a summary of the CO data and describe the methods used to select the expected maximum CO emission rates.
- b. Please provide a tabled comparison of the CO emission rates used in the initial Ambient Air Quality Analysis versus the expected maximum CO emission rates. If the expected maximum CO emission rates are higher, please revise the PSD significant impact analysis and the AAQS analysis accordingly. Please provide a report of the revised modeling effort as well as the modeling files for review.
- c. If additional modeling is necessary and indicates a significant impact, the Department is considering new short-term CO limits. If revised modeling indicates an insignificant impact, the Department is considering providing the short-term CO emission rates in the revised permit for informational purposes.

**Response:**

- a. OkPLP has reviewed the historic CO data from the CEM, and have identified the periods of highest 1-hour and 8-hour averages. These are presented in Appendix B. The highest 8-hour average CO levels are 4.28, 2.69, 1.88, 1.03, 0.76 and 0.75 lb/MMBtu. The three highest levels occurred during cold startup of the boilers. OkPLP's permit provides for up to 4 hours or until the boiler reaches 150,000 lb/hr steam for excess emissions during a cold startup. CO emissions during the startup period are excluded from the 8-hour and 1-hour CEM averages for compliance purposes. Therefore, these excluded periods were not included in determining the highest CO levels, but were nonetheless related to boiler startup. The other three high CO averages appear to not be related to a cold startup. The highest 1-hour average CO levels also occurred during a cold startup period. The maximum 1-hour CO level was 6.5 lb/MMBtu.

Based on a review of the data, the very highest CO emissions occur very infrequently, and during cold startup periods. Outside of cold startup conditions, the highest 8-hour CO level is only about 1.0 lb/MMBtu. Outside of cold startup, the highest 1-hour CO level is about 1.8 lb/MMBtu.

- b. An ambient air quality modeling analysis for CO was not conducted for the facility in the past because PSD review was not triggered for CO. Therefore, a modeling analysis for CO has been conducted and is attached in Appendix C. The significant impact analysis was

conducted assuming current CO emission rates of 0.35 lb/MMBtu for both the 1-hour and 8-hour averaging times, since the original CO permit limit for OkPLP was 0.35 lb/MMBtu as an 8-hour average. Future maximum CO levels were assumed to be 6.5 lb/MMBtu for the 1-hour average, and 4.5 lb/MMBtu for the 8-hour average.

- c. The CO modeling analysis resulted in a significant impact based on the emission rates described above, therefore a full CO modeling analysis was performed (see Appendix C). However, at the normal expected maximum CO emission rates (1.8 lb/MMBtu, 1-hour; 1.0 lb/MMBtu, 8-hour), the CO impacts are not significant. Since the highest CO emissions occur very infrequently, and the normal maximum CO levels cause an insignificant impact, short-term CO emission limits for the OkPLP boilers are considered unnecessary.

**5. Comment: The following table is presented to document the original SO<sub>2</sub> standards, subsequent changes, and the current request:**

**Table 6. Summary of SO<sub>2</sub> Standards**

| Year    | Average | Biomass   | Oil           | Coal         |
|---------|---------|---|---------------|--------------|
| 1993    | 3-hour  | NA  | NA            | 1.2 lb/MMBtu |
|         | 24-hour | 0.10 lb/MMBtu                                   | 0.05 lb/MMBtu | 1.2 lb/MMBtu |
|         | 30-day  | 0.02 lb/MMBtu                                   | NA            | 1.2 lb/MMBtu |
|         | Annual  | 0.02 lb/MMBtu                                   | NA            | 1.2 lb/MMBtu |
| 1997    | 3-hour  | NA  | NA            | 1.2 lb/MMBtu |
|         | 24-hour | 0.10 lb/MMBtu                                   | 0.05 lb/MMBtu | 1.2 lb/MMBtu |
|         | 30-day  | 0.02 lb/MMBtu (Bagasse)<br>0.05 lb/MMBtu (Wood) | NA            | 1.2 lb/MMBtu |
|         | Annual  | 0.02 lb/MMBtu (Bagasse)<br>0.05 lb/MMBtu (Wood) | NA            | 1.2 lb/MMBtu |
| Request | 3-hour  | NA  | NA            | 1.2 lb/MMBtu |
|         | 24-hour | 0.20 lb/MMBtu                                   | 0.05 lb/MMBtu | 1.2 lb/MMBtu |
|         | 30-day  | 0.10 lb/MMBtu                                   | NA            | 1.2 lb/MMBtu |
|         | Annual  | 0.10 lb/MMBtu                                   | NA            | 1.2 lb/MMBtu |

- a. The Department notes that the Ambient Air Quality Standards (AAQS) are defined for SO<sub>2</sub> in terms of 3-hour, 24-hour, and annual averages. The initial Ambient Air Quality Analysis was based on maximum emissions rates reflecting these averaging periods. Please review the available operating data and provide the expected maximum SO<sub>2</sub> emission rates based on the 3-hour, 24-hour, and annual averages from the SO<sub>2</sub> CEMS. Provide a summary of the SO<sub>2</sub> data and describe the methods used to select the expected maximum SO<sub>2</sub> emission rates.
- b. Please provide a tabled comparison of the modeled SO<sub>2</sub> emission rates used for the original PSD Air Quality Analysis versus the expected maximum (and requested) SO<sub>2</sub> emission rates. If the expected maximum (or requested) SO<sub>2</sub> emission rates are higher, please revise the PSD significant impact analysis, Class I and Class I increment consumption, and the AAQS analysis accordingly. Please provide a report of the revised modeling effort as well as the modeling files for review.
- c. If additional modeling is necessary and indicates a significant impact, the Department is considering new short-term SO<sub>2</sub> limits. If revised modeling indicates an insignificant



**impact, the Department is considering providing the short-term SO<sub>2</sub> emission rates in the revised permit for informational purposes.**

**Response:**

- a. OkPLP has reviewed the historic SO<sub>2</sub> data from the CEMS, and have identified the periods of highest 1-hour averages. These are presented in Appendix B. The highest 1-hour average SO<sub>2</sub> level is about 0.17 lb/MMBtu. Based on these data, it is expected that the maximum 3-hour SO<sub>2</sub> emissions in the future will not be greater than 0.3 lb/MMBtu. The proposed maximum 24-hour SO<sub>2</sub> limit is 0.20 lb/MMBtu.

An ambient air quality modeling analysis for SO<sub>2</sub> was conducted for the facility in the past. Maximum SO<sub>2</sub> emissions were based on coal firing, and were 588 lb/hr per boiler (1.2 lb/MMBtu), and 1,154 TPY. This emission rate is much higher than the expected maximum 3-hour SO<sub>2</sub> emission rate of 214.5 lb/hr per boiler (0.3 lb/MMBtu) or the proposed maximum 24-hour emission rate of 143 lb/hr per boiler (0.2 lb/MMBtu). The proposed maximum annual SO<sub>2</sub> emission rate of 575 TPY is also much less than the previously modeled/permitted emissions of 1,154 TPY. Therefore, a revised modeling analysis for SO<sub>2</sub> was not conducted.

- 6. Comment: As the Department has pointed out during previous permitting actions, the initial PSD air construction permit authorized the installation of coal handling facilities and the firing of low sulfur coal. However, the coal handling facilities were never constructed and coal has never been fired at this plant. Okeelanta Power L.P. must obtain new authorization from the Department (through a permit modification) to fire any coal in the future. At the very least, such a request shall evaluate current "Best Available Control Technologies" for each significant pollutant. Also, it is inappropriate to use the "potential emissions" for a fuel (coal) that is no longer authorized and has never been fired as emissions decreases to offset increases in actual emissions from the proposed project. Please revise the request accordingly.**

**Response:** OkPLP is no longer requesting that coal be retained as an alternate fuel. Revised emission tables and permit application form pages are attached which reflect this change

- 7. Comment: The Department intends to update the PSD permit to incorporate all of the previous revisions. Please include any other requests for amendments at this time.**

**Response:** They are several additional issues OkPLP would like to address at this time, as requested by the Department. These are as follows:

- a. Stack testing for SO<sub>2</sub>, CO, NO<sub>x</sub>, visible emissions, fluorides, beryllium, arsenic, chromium and copper. The original construction permit and the current Title V permit (0990005-003-AV) for the facility requires that annual stack testing for PM/PM<sub>10</sub>, SO<sub>2</sub>, sulfuric acid mist, NO<sub>x</sub>, CO, VOC, mercury, arsenic, chromium, copper and visible emissions (VE) be conducted annually. Also, testing for lead, fluorides and beryllium is required every five years at permit renewal. Each boiler at OkPLP has continuous emissions monitors (CEM) for SO<sub>2</sub>, CO, NO<sub>x</sub>, and opacity. An annual RATA and quarterly audits are performed on the units, according to 40 CFR 60, Appendix F. Also, compliance with the emissions limits are demonstrated through the CEM and not through the stack tests. Stack testing cannot demonstrate compliance with the emission limits due to the averaging times associated with the various limits. It is therefore requested that the requirement for annual testing for SO<sub>2</sub>, CO, NO<sub>x</sub>, and VE be eliminated from the permit.

In this application, OkPLP is not requesting the authorization to fire coal in the boilers. The emission limits in the permit and the stack testing requirements for fluorides and beryllium were only placed in the permit because of coal firing. Therefore it is requested that testing no longer be required for these pollutants.

It is also requested that stack testing for arsenic, chromium and copper be removed from the permit. The requirements to test these pollutants were established during the time when the Department had an air toxics policy, and were requiring the estimation of toxic air pollutants, which led to the testing requirements. The Department no longer regulates toxic air pollutants in this manner, deferring instead to EPA's MACT rules. The OkPLP permit contains other provisions related to the arsenic, chromium and copper content of the wood fuel, as well as a fuel management plan. These were placed in the permit to minimize the amount of treated wood being delivered to the facility and burned in the boilers. OkPLP is not requesting that these provisions related to the wood fuel be removed. However, OkPLP believes that the provisions in the permit related to the metals content of the fuel and the fuel inspection and testing plan adequately ensure that treated wood burned at the facility is minimized. There are no emission limits for these pollutants in the current permit. The stack sampling requirements therefore are not necessary, and provide very limited data (data only on the day of the stack test), are burdensome, and do not relate to any established emission limits or ambient standards.

- b. Emission limits for lead, mercury, fluorides and beryllium. Currently, the OkPLP facility has emission limits for lead and mercury for both bagasse and wood fuel. OkPLP would like to consolidate these dual limits into a single limit for both fuels. The single limit would be the higher of the two existing limits for each pollutant (i.e., 1.6E-04 lb/MMBtu for lead, and 5.43E-06 for mercury). OkPLP's current and expected future operation is to burn both wood and bagasse simultaneously. The dual limits complicate facility compliance testing, as well as requiring testing on each fuel individually.

Since these changes will result in a change to the PSD permit, they have been included in a revised PSD applicability analysis, attached.

In the case of fluorides and beryllium, the emission limits in the permit were placed there solely due to coal burning. Limits were established for No. 2 fuel oil and coal, but over 99 percent of the emissions were due to coal firing. Since coal will no longer be burned at the facility, it is requested that the fluoride and beryllium limits for both oil and coal be removed from the permit. There is no basis to regulate these emissions from the facility.

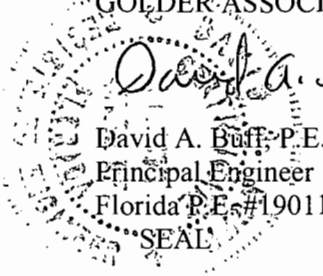
- c. Eliminate the requirement for a carbon injection system. The OkPLP permit requires that a carbon injection system be installed for mercury control. This requirement was due to concerns over mercury emissions in the early 90's. Mercury stack testing has demonstrated that the mercury emissions limits for wood and bagasse can be met without any carbon injection (see attached test data from 1999 contained in Appendix D). Further, mercury testing conducted in 1996 at various carbon injection rates showed no correlation with mercury removal efficiency or emission rate (see attached test data from 1996 in Appendix D). This is believed to be due to the very low mercury levels in the wood and bagasse fuel, as well as the presence of unburned carbon in the fly ash, which absorbs mercury from the flue gas. Based on these data, and the fact that coal will no longer be burned at the facility, it is requested that the requirement to operate a carbon injection system

be removed from the permit. OkPLP would be willing to keep the existing carbon injection system in place in case the current situation changes that warrants reactivation of the system.

- d. Bubbling of lead and mercury limits. Due to the very low magnitude of the emissions limits for lead and mercury, and limitations in the test methods, actual emissions of these pollutants from the stack testing can vary substantially. For instance, recent compliance testing for lead when burning bagasse revealed two boilers out of the three boilers exceeding the emission limit for lead. The other boiler exhibited emissions well below the standard. Retesting of the two boilers resulted in one boiler being in compliance and the second boiler being over the limit. The cause of these "spikes" is not known, especially since they occurred when burning bagasse, and there is no known source of lead in the fuel stream. Sample contamination is possible. A bubble limit, wherein the average of the three boilers would be compared to the applicable limit, would provide some relief from these anomalies. It is therefore requested that the lead and mercury limits be set as the average over the three boilers, as opposed to an individual limit for each boiler.

Updated application form pages, tables from the application, and supportive information are attached. Thank you for your consideration of this information and requests. Please call if there are any questions.

Sincerely,  
GOLDER ASSOCIATES INC.



*David A. Buff*  
David A. Buff, P.E., Q.E.P.  
Principal Engineer  
Florida P.E. #19011  
SEAL

DB/arz

cc: Gus Cepero  
James Meriwether  
David Dee  
Bill Tarr

*C. Holladay*  
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*J. Goldman, SED*  
*O. Khayami, BBCHD*  
EPA  
NPS

**REVISIONS  
TO  
APPLICATION FORM**

**III. EMISSIONS UNIT INFORMATION**

A separate Emissions Unit Information Section (including subsections A through J as required) must be completed for each emissions unit addressed in this Application for Air Permit. If submitting the application form in hard copy, indicate, in the space provided at the top of each page, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application.

**A. GENERAL EMISSIONS UNIT INFORMATION  
(All Emissions Units)**

**Emissions Unit Description and Status**

|  |                          |  |                           |
|--|--------------------------|--|---------------------------|
| 1. Type of Emissions Unit Addressed in This Section: (Check one)<br><input checked="" type="checkbox"/> This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).<br><input type="checkbox"/> This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.<br><input type="checkbox"/> This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only. |                          |  |                           |
| 2. Regulated or Unregulated Emissions Unit? (Check one)<br><input checked="" type="checkbox"/> The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.<br><input type="checkbox"/> The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.  |                          |  |                           |
| 3. Description of Emissions Unit Addressed in This Section (limit to 60 characters):<br><br><p style="text-align: center;"><b>Cogen Boiler A fired by Biomass/No. 2 oil/natural gas</b></p>  |                          |  |                           |
| 4. Emissions Unit Identification Number:<br>ID: [030] No ID  |                          |  |                           |
| 5. Emissions Unit Status Code:<br><b>A</b>   | 6. Initial Startup Date: | 7. Emissions Unit Major Group SIC Code:<br><b>49</b> | 8. Acid Rain Unit?<br>[ ] |
| 9. Emissions Unit Comment: (Limit to 500 Characters)<br><br><p style="text-align: center;"><b>74.9 MW gross generating capacity for entire facility.</b></p>   |                          |  |                           |

**B. EMISSIONS UNIT CAPACITY INFORMATION**  
(Regulated Emissions Units Only)

Emissions Unit Operating Capacity and Schedule

|   |                         |
|---|-------------------------|
| 1. Maximum Heat Input Rate:   | <b>715</b> mmBtu/hr     |
| 2. Maximum Incineration Rate:   | lb/hr                   |
| 3. Maximum <del>Process or</del> Throughput Rate:   | tons/day                |
| 4. Maximum Production Rate:   |                         |
| 5. Requested Maximum Operating Schedule:  |                         |
| <b>24</b> hours/day   | <b>7</b> days/week      |
| <b>52</b> weeks/year  | <b>8,760</b> hours/year |
| 6. Operating Capacity/Schedule Comment (limit to 200 characters):   |                         |
| <p><b>Maximum heat input rates: Biomass - 715 MMBtu/hr; No. 2 Fuel Oil - 490 MMBtu/hr;<br/>Natural Gas - 605 MMBtu/hr</b></p> |                         |

E. SEGMENT (PROCESS/FUEL) INFORMATION  
(All Emissions Units)

Segment Description and Rate: Segment  3  of  4

|   |  |  |
|---|--|--|
| 1. Segment Description (Process/Fuel Type) (limit to 500 characters):<br><br><b>Electric Utility Boiler - Distillate Oil - Grades 1 and 2 Oil</b>   |  |  |
| 2. Source Classification Code (SCC):<br><b>10100501</b>   |  | 3. SCC Units:<br><b>Thousand Gallons Burned (all liquid fuels)</b> |
| 4. Maximum Hourly Rate:<br><b>3.551</b>   | 5. Maximum Annual Rate:<br><b>10,639</b> | 6. Estimated Annual Activity Factor:                               |
| 7. Maximum % Sulfur:<br><b>0.05</b>   | 8. Maximum % Ash:                        | 9. Million Btu per SCC Unit:<br><b>138</b>                         |
| 10. Segment Comment (limit to 200 characters):<br><br><b>Maximum annual rate represents 24.9% oil firing on a heat input basis. Total No. 2 fuel all three boilers = 19,533,086 gallyr.</b> |  |  |

Segment Description and Rate: Segment  4  of  4

|   |   |  |
|---|---|--|
| 1. Segment Description (Process/Fuel Type) (limit to 500 characters):<br><br><b>Electric Utility Boiler – Natural Gas</b>   |   |  |
| 2. Source Classification Code (SCC):<br><b>10100601</b>   |   | 3. SCC Units:<br><b>MMscf Burned</b>         |
| 4. Maximum Hourly Rate:<br><b>0.605</b>   | 5. Maximum Annual Rate:<br><b>1,468</b> | 6. Estimated Annual Activity Factor:         |
| 7. Maximum % Sulfur:  | 8. Maximum % Ash:                       | 9. Million Btu per SCC Unit:<br><b>1,000</b> |
| 10. Segment Comment (limit to 200 characters):<br><br><b>Maximum annual rate represents 24.9% gas firing on a heat input basis. Total natural gas all three boilers = 2,696 MMscf/yr.</b> |   |  |

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
 (Regulated Emissions Units -  
 Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

|   |   |
|---|---|
| 1. Pollutant Emitted:<br><b>SO<sub>2</sub></b>  | 2. Total Percent Efficiency of Control:                       |
| 3. Potential Emissions:<br><b>214.5 lb/hour</b> <b>313.2 tons/year</b>  | 4. Synthetically Limited? <input checked="" type="checkbox"/> |
| 5. Range of Estimated Fugitive Emissions:<br><input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3      _____ to _____ tons/year |   |
| 6. Emission Factor: <b>0.30 lb/MMBtu</b><br>Reference: <b>CEM Data</b>  | 7. Emissions Method Code:<br><b>0</b>                         |
| 8. Calculation of Emissions (limit to 600 characters):<br><br><b>0.30 lb/MMBtu x 715 MMBtu/hr = 214.5 lb/hr</b>   |   |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):<br><br><b>575 TPY total for all three boilers. Based on biomass firing.</b>    |   |

Allowable Emissions Allowable Emissions 1 of 2

|   |   |
|---|---|
| 1. Basis for Allowable Emissions Code:<br><b>OTHER</b>  | 2. Future Effective Date of Allowable Emissions:                                  |
| 3. Requested Allowable Emissions and Units:<br><b>0.20 lb/MMBtu</b>   | 4. Equivalent Allowable Emissions:<br><b>143.0 lb/hour</b> <b>313.2 tons/year</b> |
| 5. Method of Compliance (limit to 60 characters):<br><br><b>Continuous SO<sub>2</sub> monitor</b>   |   |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><br><b>Requested Allowable Emissions: 0.2 lb/MMBtu 24-hr avg; Annual-0.10 lb/MMBtu. Based on biomass firing.</b> |   |



**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
 (Regulated Emissions Units -  
 Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

|   |  |   |                               |
|---|--|---|-------------------------------|
| 1. Pollutant Emitted:<br><b>SO<sub>2</sub></b>  |  | 2. Total Percent Efficiency of Control: |                               |
| 3. Potential Emissions:<br>lb/hour  |  | tons/year                               | 4. Synthetically Limited? [ ] |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year |  |   |                               |
| 6. Emission Factor:<br>Reference:   |  | 7. Emissions Method Code:               |                               |
| 8. Calculation of Emissions (limit to 600 characters):                                  |  |   |                               |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):            |  |   |                               |

Allowable Emissions Allowable Emissions  2  of  2

|  |  |  |  |
|--|--|--|--|
| 1. Basis for Allowable Emissions Code:<br><b>RULE</b>  |  | 2. Future Effective Date of Allowable Emissions:                         |  |
| 3. Requested Allowable Emissions and Units:<br><b>0.05 lb/MMBtu</b>  |  | 4. Equivalent Allowable Emissions:<br><b>24.5 lb/hour 36.7 tons/year</b> |  |
| 5. Method of Compliance (limit to 60 characters):<br><b>Limit fuel oil burning to 24.9% for any single boiler.</b>                       |  |  |  |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><b>Based on No. 2 fuel oil firing and BACT.</b> |  |  |  |

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**

(Regulated Emissions Units -

Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

|   |   |
|---|---|
| 1. Pollutant Emitted:<br><b>CO</b>  | 2. Total Percent Efficiency of Control:                       |
| 3. Potential Emissions:<br><b>4,648</b> lb/hour <b>1,096.3</b> tons/year  | 4. Synthetically Limited? <input checked="" type="checkbox"/> |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1      [ ] 2      [ ] 3      _____ to _____ tons/year  |   |
| 6. Emission Factor: <b>6.5 lb/MMBtu</b><br>Reference: <b>Boiler design</b>  | 7. Emissions Method Code:                                     |
| 8. Calculation of Emissions (limit to 600 characters):<br><br><b>6.5 lb/MMBtu x 715 MMBtu/hr = 4,647.5 lb/hr</b><br><b>0.35 lb/MMBtu x 715 MMBtu/hr x 8,760 hr/yr ÷ 2,000 lb/ton = 1,096.3 TPY</b>        |   |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):<br><br><b>6.5 lb/MMBtu as a 1-hr average; 0.35 lb/MMBtu as an annual average. Total for all three boilers = 2,012.5 TPY.</b> |   |

Allowable Emissions Allowable Emissions 1 of 1

|   |  |
|---|--|
| 1. Basis for Allowable Emissions Code:<br><b>OTHER</b>  | 2. Future Effective Date of Allowable Emissions:                       |
| 3. Requested Allowable Emissions and Units:<br><b>0.35 lb/MMBtu</b>   | 4. Equivalent Allowable Emissions:<br>lb/hour <b>1,096.3</b> tons/year |
| 5. Method of Compliance (limit to 60 characters):<br><br><b>Continuous CO monitor.</b>  |  |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><br><b>lb/MMBtu limit based on 12-month rolling average. All three boilers limited to 2,012.5 TPY.</b> |  |

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
 (Regulated Emissions Units -  
 Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

|  |  |   |  |
|--|--|---|--|
| 1. Pollutant Emitted:<br><b>SAM</b>  |  | 2. Total Percent Efficiency of Control:                           |  |
| 3. Potential Emissions:<br><b>13.2</b> lb/hour <b>57.62</b> tons/year  |  | 4. Synthetically Limited? [ <input checked="" type="checkbox"/> ] |  |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1      [ ] 2      [ ] 3      _____ to _____ tons/year   |  |   |  |
| 6. Emission Factor: <b>0.0184 lb/MMBtu</b><br>Reference: <b>Permit</b>   |  | 7. Emissions Method Code:   |  |
| 8. Calculation of Emissions (limit to 600 characters):<br><br><b>0.0184 lb/MMBtu x 715 MMBtu/hr = 13.16 lb/hr</b>                                    |  |   |  |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):<br><br><b>Based on biomass firing, 105.8 TPY total for all boilers.</b> |  |   |  |

Allowable Emissions Allowable Emissions  1  of  2

|  |  |  |  |
|--|--|--|--|
| 1. Basis for Allowable Emissions Code:<br><b>OTHER</b>   |  | 2. Future Effective Date of Allowable Emissions:                                 |  |
| 3. Requested Allowable Emissions and Units:<br><b>0.0184 lb/MMBtu</b>  |  | 4. Equivalent Allowable Emissions:<br><b>13.2</b> lb/hour <b>57.62</b> tons/year |  |
| 5. Method of Compliance (limit to 60 characters):<br><br><b>EPA Method 8 once every 5 years.</b>                             |  |  |  |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><br><b>Based on biomass firing.</b> |  |  |  |

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
 (Regulated Emissions Units -  
 Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

|   |  |   |  |
|---|--|---|--|
| 1. Pollutant Emitted:<br><b>SAM</b>   |  | 2. Total Percent Efficiency of Control: |  |
| 3. Potential Emissions:<br>lb/hour  |  | 4. Synthetically Limited? [ ]           |  |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year |  |   |  |
| 6. Emission Factor:<br>Reference:   |  | 7. Emissions Method Code:               |  |
| 8. Calculation of Emissions (limit to 600 characters):                                  |  |   |  |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):            |  |   |  |

Allowable Emissions Allowable Emissions 2 of 2

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

III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A through J as required) must be completed for each emissions unit addressed in this Application for Air Permit. If submitting the application form in hard copy, indicate, in the space provided at the top of each page, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application.

A. GENERAL EMISSIONS UNIT INFORMATION  
(All Emissions Units)

Emissions Unit Description and Status

|  |                          |  |  |
|--|--------------------------|--|--|
| 1. Type of Emissions Unit Addressed in This Section: (Check one)<br><input checked="" type="checkbox"/> This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).<br><input type="checkbox"/> This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.<br><input type="checkbox"/> This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only. |                          |  |  |
| 2. Regulated or Unregulated Emissions Unit? (Check one)<br><input checked="" type="checkbox"/> The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.<br><input type="checkbox"/> The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.  |                          |  |  |
| 3. Description of Emissions Unit Addressed in This Section (limit to 60 characters):<br><br><p style="text-align: center;"><b>Cogen Boiler B fired by Biomass/No. 2 oil/natural gas</b></p>  |                          |  |  |
| 4. Emissions Unit Identification Number:<br><input type="checkbox"/> No ID<br>ID: <u>031</u>   |                          |  |  |
| 5. Emissions Unit Status Code:<br><b>A</b>   | 6. Initial Startup Date: | 7. Emissions Unit Major Group SIC Code:<br><b>49</b> | 8. Acid Rain Unit? <input type="checkbox"/> ID |
| 9. Emissions Unit Comment: (Limit to 500 Characters)<br><br><p style="text-align: center;"><b>74.9 MW gross generating capacity for entire facility:</b></p>   |                          |  |  |

**B. EMISSIONS UNIT CAPACITY INFORMATION  
(Regulated Emissions Units Only)**

**Emissions Unit Operating Capacity and Schedule**

|   |                     |
|---|---------------------|
| 1. Maximum Heat Input Rate:   | <b>715</b> mmBtu/hr |
| 2. Maximum Incineration Rate:   | lb/hr               |
| 3. Maximum <sup>tons/day</sup> Process or Throughput Rate:  |                     |
| 4. Maximum Production Rate:   |                     |
| 5. Requested Maximum Operating Schedule:  |                     |
| 24 hours/day  | 7 days/week         |
| 52 weeks/year   | 8,760 hours/year    |
| 6. Operating Capacity/Schedule Comment (limit to 200 characters):   |                     |
| <p><b>Maximum heat input rates: Biomass - 715 MMBtu/hr; No. 2 Fuel Oil - 490 MMBtu/hr;<br/>Natural Gas – 605 MMBtu/hr</b></p> |                     |

**E. SEGMENT (PROCESS/FUEL) INFORMATION  
(All Emissions Units)**

**Segment Description and Rate:** Segment 3 of 4

|   |  |  |
|---|--|--|
| 1. Segment Description (Process/Fuel Type) (limit to 500 characters):<br><br><b>Electric Utility Boiler - Distillate Oil - Grades 1 and 2 Oil</b>   |  |  |
| 2. Source Classification Code (SCC):<br><b>10100501</b>   |  | 3. SCC Units:<br><b>Thousand Gallons Burned (all liquid fuels)</b> |
| 4. Maximum Hourly Rate:<br><b>3.551</b>   | 5. Maximum Annual Rate:<br><b>10,639</b> | 6. Estimated Annual Activity Factor:                               |
| 7. Maximum % Sulfur:<br><b>0.05</b>   | 8. Maximum % Ash:                        | 9. Million Btu per SCC Unit:<br><b>138</b>                         |
| 10. Segment Comment (limit to 200 characters):<br><br><b>Maximum annual rate represents 24.9% oil firing on a heat input basis. Total No. 2 fuel all three boilers = 19,533,086 gal/yr.</b> |  |  |

**Segment Description and Rate:** Segment 4 of 4

|   |   |  |
|---|---|--|
| 1. Segment Description (Process/Fuel Type) (limit to 500 characters):<br><br><b>Electric Utility Boiler – Natural Gas</b>   |   |  |
| 2. Source Classification Code (SCC):<br><b>10100601</b>   |   | 3. SCC Units:<br><b>MMscf Burned</b>         |
| 4. Maximum Hourly Rate:<br><b>0.605</b>   | 5. Maximum Annual Rate:<br><b>1,468</b> | 6. Estimated Annual Activity Factor:         |
| 7. Maximum % Sulfur:  | 8. Maximum % Ash:                       | 9. Million Btu per SCC Unit:<br><b>1,000</b> |
| 10. Segment Comment (limit to 200 characters):<br><br><b>Maximum annual rate represents 24.9% gas firing on a heat input basis. Total natural gas all three boilers = 2,696 MMscf/yr.</b> |   |  |

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
 (Regulated Emissions Units -  
 Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

|  |   |
|--|---|
| 1. Pollutant Emitted:<br><b>SO<sub>2</sub></b>   | 2. Total Percent Efficiency of Control:                       |
| 3. Potential Emissions:<br><b>214.5 lb/hour      313.2 tons/year</b>   | 4. Synthetically Limited? <input checked="" type="checkbox"/> |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1      [ ] 2      [ ] 3      _____ to _____ tons/year   |   |
| 6. Emission Factor: <b>0.30 lb/MMBtu</b><br>Reference: <b>CEM Data</b>   | 7. Emissions Method Code:<br><b>0</b>                         |
| 8. Calculation of Emissions (limit to 600 characters):<br><br><b>0.30 lb/MMBtu x 715 MMBtu/hr = 214.5 lb/hr</b>  |   |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):<br><br><b>575 TPY total for all three boilers. Based on biomass firing.</b> |   |

Allowable Emissions Allowable Emissions 1 of 2

|   |   |
|---|---|
| 1. Basis for Allowable Emissions Code:<br><b>OTHER</b>  | 2. Future Effective Date of Allowable Emissions:                                |
| 3. Requested Allowable Emissions and Units:<br><b>0.20 lb/MMBtu</b>   | 4. Equivalent Allowable Emissions:<br><b>143.0 lb/hour      313.2 tons/year</b> |
| 5. Method of Compliance (limit to 60 characters):<br><br><b>Continuous SO<sub>2</sub> monitor</b>   |   |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><br><b>Requested Allowable Emissions: 0.2 lb/MMBtu 24-hr avg; Annual-0.10 lb/MMBtu. Based on biomass firing.</b> |   |



**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
 (Regulated Emissions Units -  
 Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

|   |  |   |  |
|---|--|---|--|
| 1. Pollutant Emitted:<br><b>SO<sub>2</sub></b>  |  | 2. Total Percent Efficiency of Control: |  |
| 3. Potential Emissions:<br>lb/hour  |  | 4. Synthetically Limited? [ ]           |  |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year |  |   |  |
| 6. Emission Factor:<br>Reference:   |  | 7. Emissions Method Code:               |  |
| 8. Calculation of Emissions (limit to 600 characters):                                  |  |   |  |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):            |  |   |  |

Allowable Emissions Allowable Emissions  2  of  2

|  |  |  |  |
|--|--|--|--|
| 1. Basis for Allowable Emissions Code:<br><b>RULE</b>  |  | 2. Future Effective Date of Allowable Emissions:                         |  |
| 3. Requested Allowable Emissions and Units:<br><b>0.05 lb/MMBtu</b>  |  | 4. Equivalent Allowable Emissions:<br><b>24.5 lb/hour 36.7 tons/year</b> |  |
| 5. Method of Compliance (limit to 60 characters):<br><b>Limit fuel oil burning to 24.9% for any single boiler.</b>                       |  |  |  |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><b>Based on No. 2 fuel oil firing and BACT.</b> |  |  |  |

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
 (Regulated Emissions Units -  
 Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

|  |   |
|--|---|
| 1. Pollutant Emitted:<br><b>CO</b>   | 2. Total Percent Efficiency of Control:                       |
| 3. Potential Emissions:<br><b>4,648</b> lb/hour <b>1,096.3</b> tons/year   | 4. Synthetically Limited? <input checked="" type="checkbox"/> |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1      [ ] 2      [ ] 3      _____ to _____ tons/year   |   |
| 6. Emission Factor: <b>6.5 lb/MMBtu</b><br>Reference: <b>Boiler design</b>   | 7. Emissions Method Code:                                     |
| 8. Calculation of Emissions (limit to 600 characters):<br><br><b>6.5 lb/MMBtu x 715 MMBtu/hr = 4,647.5 lb/hr</b><br><b>0.35 lb/MMBtu x 715 MMBtu/hr x 8,760 hr/yr ÷ 2,000 lb/ton = 1,096.3 TPY</b>                                 |   |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):<br><br><b>6.5 lb/MMBtu as a 1-hr average; 0.35 lb/MMBtu as an annual average. Based on biomass firing. Total for all three boilers = 2,012.5 TPY.</b> |   |

Allowable Emissions Allowable Emissions 1 of 1

|   |  |
|---|--|
| 1. Basis for Allowable Emissions Code:<br><b>OTHER</b>  | 2. Future Effective Date of Allowable Emissions:                           |
| 3. Requested Allowable Emissions and Units:<br><b>0.35 lb/MMBtu</b>   | 4. Equivalent Allowable Emissions:<br><br>lb/hour <b>1,096.3</b> tons/year |
| 5. Method of Compliance (limit to 60 characters):<br><br><b>Continuous CO monitor.</b>  |  |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><br><b>lb/MMBtu limit based on 12-month rolling average. All three boilers limited to 2,012.5 TPY.</b> |  |

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
 (Regulated Emissions Units -  
 Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

|  |  |   |  |
|--|--|---|--|
| 1. Pollutant Emitted:<br><b>SAM</b>  |  | 2. Total Percent Efficiency of Control:                             |  |
| 3. Potential Emissions:<br><b>13.2 lb/hour</b>   |  | 4. Synthetically Limited? <input checked="" type="checkbox"/> [ X ] |  |
|  |  | <b>57.62 tons/year</b>  |  |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year  |  |   |  |
| 6. Emission Factor:<br><b>0.0184 lb/MMBtu</b><br>Reference: <b>Permit</b>  |  | 7. Emissions Method Code:   |  |
| 8. Calculation of Emissions (limit to 600 characters):<br><br><b>0.0184 lb/MMBtu x 715 MMBtu/hr = 13.16 lb/hr</b>                                    |  |   |  |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):<br><br><b>Based on biomass firing, 105.8 TPY total for all boilers.</b> |  |   |  |

Allowable Emissions Allowable Emissions  1  of  2

|  |  |   |  |
|--|--|---|--|
| 1. Basis for Allowable Emissions Code:<br><b>OTHER</b>   |  | 2. Future Effective Date of Allowable Emissions:                          |  |
| 3. Requested Allowable Emissions and Units:<br><b>0.0184 lb/MMBtu</b>  |  | 4. Equivalent Allowable Emissions:<br><b>13.2 lb/hour 57.62 tons/year</b> |  |
| 5. Method of Compliance (limit to 60 characters):<br><br><b>EPA Method 8 once every 5 years.</b>                             |  |   |  |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><br><b>Based on biomass firing.</b> |  |   |  |

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
 (Regulated Emissions Units -  
 Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

|   |  |   |  |
|---|--|---|--|
| 1. Pollutant Emitted:<br><b>SAM</b>   |  | 2. Total Percent Efficiency of Control: |  |
| 3. Potential Emissions:<br>lb/hour  |  | 4. Synthetically Limited? [ ]           |  |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year |  |   |  |
| 6. Emission Factor:<br>Reference:   |  | 7. Emissions Method Code:               |  |
| 8. Calculation of Emissions (limit to 600 characters):                                  |  |   |  |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):            |  |   |  |

Allowable Emissions Allowable Emissions  2  of  2

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

### III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A through J as required) must be completed for each emissions unit addressed in this Application for Air Permit. If submitting the application form in hard copy, indicate, in the space provided at the top of each page, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application.

#### A. GENERAL EMISSIONS UNIT INFORMATION (All Emissions Units)

##### Emissions Unit Description and Status

|   |                          |  |  |
|---|--------------------------|--|--|
| 1. Type of Emissions Unit Addressed in This Section: (Check one)  |                          |  |  |
| <input checked="" type="checkbox"/> This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent). |                          |  |  |
| <input type="checkbox"/> This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.              |                          |  |  |
| <input type="checkbox"/> This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.   |                          |  |  |
| 2. Regulated or Unregulated Emissions Unit? (Check one)   |                          |  |  |
| <input checked="" type="checkbox"/> The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.  |                          |  |  |
| <input type="checkbox"/> The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.  |                          |  |  |
| 3. Description of Emissions Unit Addressed in This Section (limit to 60 characters):  |                          |  |  |
| <b>Cogen Boiler C fired by Biomass/No. 2 oil/natural gas</b>  |                          |  |  |
| 4. Emissions Unit Identification Number:  |                          |  |  |
| <input type="checkbox"/> No ID<br>ID: <b>033</b>  |                          |  |  |
| 5. Emissions Unit Status Code:<br><b>A</b>  | 6. Initial Startup Date: | 7. Emissions Unit Major Group SIC Code:<br><b>49</b> | 8. Acid Rain Unit?<br><input type="checkbox"/> |
| 9. Emissions Unit Comment: (Limit to 500 Characters)  |                          |  |  |
| <b>74.9 MW gross generating capacity for entire facility.</b>   |                          |  |  |

**B. EMISSIONS UNIT CAPACITY INFORMATION  
(Regulated Emissions Units Only)**

**Emissions Unit Operating Capacity and Schedule**

|   |                     |
|---|---------------------|
| 1. Maximum Heat Input Rate:   | <b>715</b> mmBtu/hr |
| 2. Maximum Incineration Rate:   | lb/hr               |
| 3. Maximum <sup>tons/day</sup> Process or Throughput Rate:  |                     |
| 4. Maximum Production Rate:   |                     |
| 5. Requested Maximum Operating Schedule:  |                     |
| 24 hours/day  | 7 days/week         |
| 52 weeks/year   | 8,760 hours/year    |
| 6. Operating Capacity/Schedule Comment (limit to 200 characters):   |                     |
| <p><b>Maximum heat input rates: Biomass - 715 MMBtu/hr; No. 2 Fuel Oil - 490 MMBtu/hr;<br/>Natural Gas - 605 MMBtu/hr</b></p> |                     |

**E. SEGMENT (PROCESS/FUEL) INFORMATION**  
(All Emissions Units)

**Segment Description and Rate:** Segment 3 of 4

|   |  |  |
|---|--|--|
| 1. Segment Description (Process/Fuel Type) (limit to 500 characters):<br><br><b>Electric Utility Boiler - Distillate Oil - Grades 1 and 2 Oil</b>   |  |  |
| 2. Source Classification Code (SCC):<br><b>10100501</b>   |  | 3. SCC Units:<br><b>Thousand Gallons Burned (all liquid fuels)</b> |
| 4. Maximum Hourly Rate:<br><b>3.551</b>   | 5. Maximum Annual Rate:<br><b>10,639</b> | 6. Estimated Annual Activity Factor:                               |
| 7. Maximum % Sulfur:<br><b>0.05</b>   | 8. Maximum % Ash:                        | 9. Million Btu per SCC Unit:<br><b>138</b>                         |
| 10. Segment Comment (limit to 200 characters):<br><br><b>Maximum annual rate represents 24.9% oil firing on a heat input basis. Total No. 2 fuel all three boilers = 19,533,086 gal/yr.</b> |  |  |

**Segment Description and Rate:** Segment 4 of 4

|   |   |  |
|---|---|--|
| 1. Segment Description (Process/Fuel Type) (limit to 500 characters):<br><br><b>Electric Utility Boiler – Natural Gas</b>   |   |  |
| 2. Source Classification Code (SCC):<br><b>10100601</b>   |   | 3. SCC Units:<br><b>MMscf Burned</b>         |
| 4. Maximum Hourly Rate:<br><b>0.605</b>   | 5. Maximum Annual Rate:<br><b>1,468</b> | 6. Estimated Annual Activity Factor:         |
| 7. Maximum % Sulfur:  | 8. Maximum % Ash:                       | 9. Million Btu per SCC Unit:<br><b>1,000</b> |
| 10. Segment Comment (limit to 200 characters):<br><br><b>Maximum annual rate represents 24.9% gas firing on a heat input basis. Total natural gas all three boilers = 2,696 MMscf/yr.</b> |   |  |

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
 (Regulated Emissions Units -  
 Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

|  |   |
|--|---|
| 1. Pollutant Emitted:<br><b>SO<sub>2</sub></b>   | 2. Total Percent Efficiency of Control: |
| 3. Potential Emissions:<br><b>214.5 lb/hour      313.2 tons/year</b>   | 4. Synthetically Limited? <b>[ X ]</b>  |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1    [ ] 2    [ ] 3    _____ to _____ tons/year   |   |
| 6. Emission Factor: <b>0.30 lb/MMBtu</b><br>Reference: <b>CEM Data</b>   | 7. Emissions Method Code:<br><b>0</b>   |
| 8. Calculation of Emissions (limit to 600 characters):<br><br><b>0.30 lb/MMBtu x 715 MMBtu/hr = 214.5 lb/hr</b>  |   |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):<br><br><b>575 TPY total for all three boilers. Based on biomass firing.</b> |   |

Allowable Emissions Allowable Emissions 1 of 2

|   |   |
|---|---|
| 1. Basis for Allowable Emissions Code:<br><b>OTHER</b>  | 2. Future Effective Date of Allowable Emissions:                                |
| 3. Requested Allowable Emissions and Units:<br><b>0.20 lb/MMBtu</b>   | 4. Equivalent Allowable Emissions:<br><b>143.0 lb/hour      313.2 tons/year</b> |
| 5. Method of Compliance (limit to 60 characters):<br><br><b>Continuous SO<sub>2</sub> monitor</b>   |   |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><br><b>Requested Allowable Emissions: 0.2 lb/MMBtu 24-hr avg; Annual-0.10 lb/MMBtu. Based on biomass firing.</b> |   |



**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION****(Regulated Emissions Units -****Emissions-Limited and Preconstruction Review Pollutants Only)****Potential/Fugitive Emissions**

|   |  |
|---|--|
| 1. Pollutant Emitted:<br><b>SO<sub>2</sub></b>  | 2. Total Percent Efficiency of Control:    |
| 3. Potential Emissions:<br>lb/hour  | 4. Synthetically Limited? [ ]<br>tons/year |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year |  |
| 6. Emission Factor:<br>Reference:   | 7. Emissions Method Code:                  |
| 8. Calculation of Emissions (limit to 600 characters):                                  |  |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):            |  |

**Allowable Emissions** Allowable Emissions 2 of 2

|  |  |
|--|--|
| 1. Basis for Allowable Emissions Code:<br><b>RULE</b>  | 2. Future Effective Date of Allowable Emissions:                         |
| 3. Requested Allowable Emissions and Units:<br><b>0.05 lb/MMBtu</b>  | 4. Equivalent Allowable Emissions:<br><b>24.5 lb/hour 36.7 tons/year</b> |
| 5. Method of Compliance (limit to 60 characters):<br><b>Limit fuel oil burning to 24.9% for any single boiler.</b>                       |  |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><b>Based on No. 2 fuel oil firing and BACT.</b> |  |

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
 (Regulated Emissions Units -  
 Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

|  |  |   |  |
|--|--|---|--|
| 1. Pollutant Emitted:<br><b>CO</b>   |  | 2. Total Percent Efficiency of Control:                             |  |
| 3. Potential Emissions:<br><b>4,648</b> lb/hour  |  | 4. Synthetically Limited? <input checked="" type="checkbox"/> [ X ] |  |
|  |  | <b>1096.3</b> tons/year   |  |
| 5. Range of Estimated Fugitive Emissions:<br><input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3    _____ to _____ tons/year  |  |   |  |
| 6. Emission Factor:<br>Reference: <b>Boiler design</b>   |  | 7. Emissions Method Code:   |  |
| 8. Calculation of Emissions (limit to 600 characters):<br><br><b>6.5 lb/MMBtu x 715 MMBtu/hr = 4,647.5 lb/hr</b><br><b>0.35 lb/MMBtu x 715 MMBtu/hr x 8,760 hr/yr ÷ 2,000 lb/ton = 1,096.3 TPY</b>                                 |  |   |  |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):<br><br><b>6.5 lb/MMBtu as a 1-hr average; 0.35 lb/MMBtu as an annual average. Based on biomass firing. Total for all three boilers = 2,012.5 TPY.</b> |  |   |  |

Allowable Emissions Allowable Emissions 1 of 1

|   |  |  |  |
|---|--|--|--|
| 1. Basis for Allowable Emissions Code:<br><b>OTHER</b>  |  | 2. Future Effective Date of Allowable Emissions:                       |  |
| 3. Requested Allowable Emissions and Units:<br><b>0.35 lb/MMBtu</b>   |  | 4. Equivalent Allowable Emissions:<br>lb/hour <b>1,096.3</b> tons/year |  |
| 5. Method of Compliance (limit to 60 characters):<br><br><b>Continuous CO monitor.</b>  |  |  |  |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><br><b>lb/MMBtu limit based on 12-month rolling average. All three boilers limited to 2,012.5 TPY.</b> |  |  |  |

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
 (Regulated Emissions Units -  
 Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

|  |  |   |  |
|--|--|---|--|
| 1. Pollutant Emitted:<br><b>SAM</b>  |  | 2. Total Percent Efficiency of Control:                             |  |
| 3. Potential Emissions:<br><b>13.2 lb/hour</b>   |  | 4. Synthetically Limited? <input checked="" type="checkbox"/> [ X ] |  |
|  |  | <b>57.62 tons/year</b>  |  |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year  |  |   |  |
| 6. Emission Factor:<br><b>0.0184 lb/MMBtu</b><br>Reference: <b>Permit</b>  |  | 7. Emissions Method Code:   |  |
| 8. Calculation of Emissions (limit to 600 characters):<br><br><b>0.0184 lb/MMBtu x 715 MMBtu/hr = 13.16 lb/hr</b>                                    |  |   |  |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):<br><br><b>Based on biomass firing, 105.8 TPY total for all boilers.</b> |  |   |  |

Allowable Emissions Allowable Emissions  1  of  2

|  |  |  |  |
|--|--|--|--|
| 1. Basis for Allowable Emissions Code:<br><b>OTHER</b>   |  | 2. Future Effective Date of Allowable Emissions:                                 |  |
| 3. Requested Allowable Emissions and Units:<br><b>0.0184 lb/MMBtu</b>  |  | 4. Equivalent Allowable Emissions:<br><b>13.2 lb/hour</b> <b>57.62 tons/year</b> |  |
| 5. Method of Compliance (limit to 60 characters):<br><br><b>EPA Method 8 once every 5 years</b>                              |  |  |  |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><br><b>Based on biomass firing.</b> |  |  |  |

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
 (Regulated Emissions Units -  
 Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

|   |  |   |                               |
|---|--|---|-------------------------------|
| 1. Pollutant Emitted:<br><b>SAM</b>   |  | 2. Total Percent Efficiency of Control: |                               |
| 3. Potential Emissions:<br>lb/hour  |  | tons/year                               | 4. Synthetically Limited? [ ] |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year |  |   |                               |
| 6. Emission Factor:<br>Reference:   |  | 7. Emissions Method Code:               |                               |
| 8. Calculation of Emissions (limit to 600 characters):                                  |  |   |                               |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):            |  |   |                               |

Allowable Emissions Allowable Emissions 2 of 2

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

**APPENDIX A**

**DAILY AVERAGE CO, NO<sub>x</sub>, AND SO<sub>2</sub> CEM DATA**

| Okeelanta Cogeneration Facility - Boiler A                 |           |            |            |           |          |              |           |            |          |      | Table 1 - Page 1 of 3 |  |
|--|-----------|------------|------------|-----------|----------|--------------|-----------|------------|----------|------|-----------------------|--|
| Carbon Monoxide (CO) excess emissions 11/10/99 to 11/30/99 |           |            |            |           |          |              |           |            |          |      |                       |  |
| Date:  | CO-24 hr. | NOx-24 hr. | SO2-24 hr. | Wood/tons | Bag/tons | Fuel Oil/gal | Wood/Bag% | Steam Prod | MW Prod. | O2   | F-factor              |  |
| 9/8/1999   | 0.621     | 0.155      | 0.030      | 1096      | 573      | 0            | 66/34     | 7830       | 1430     | 7.8  | 1850                  |  |
| 9/9/1999   | 0.324     | 0.147      | 0.026      | 1156      | 259      | 0            | 82/18     | 7730       | 1323     | 7.3  | 1850                  |  |
| 9/10/1999  | 0.248     | 0.142      | 0.019      | 1168      | 296      | 0            | 80/20     | 8633       | 1482     | 6.5  | 1850                  |  |
| 9/11/1999  | 0.413     | 0.156      | 0.021      | 1178      | 102      | 0            | 92/8      | 6807       | 1150     | 8.7  | 1850                  |  |
| 9/12/1999  | 0.188     | 0.142      | 0.019      | 1373      | 0        | 0            | 100/0     | 6865       | 1204     | 8.1  | 1850                  |  |
| 9/13/1999  | 0.577     | 0.167      | 0.024      | 1075      | 0        | 0            | 100/0     | 5121       | 284      | 9.7  | 1850                  |  |
| 9/16/1999  | 0.269     | 0.148      | 0.035      | 1017      | 157      | 4183         | 87/13     | 6801       | 1414     | 9.3  | 1850                  |  |
| 9/17/1999  | 0.215     | 0.136      | 0.043      | 1018      | 65       | 0            | 94/6      | 6806       | 1459     | 7.3  | 1850                  |  |
| 9/18/1999  | 0.243     | 0.151      | 0.027      | 937       | 73       | 2139         | 93/7      | 4472       | 1191     | 9.6  | 1850                  |  |
| 9/19/1999  | 0.344     | 0.155      | 0.025      | 1138      | 0        | 1185         | 100/0     | 5362       | 1167     | 9.2  | 1850                  |  |
| 9/20/1999  | 0.319     | 0.150      | 0.027      | 875       | 0        | 2628         | 100/0     | 5621       | 1316     | 8.8  | 1850                  |  |
| 9/22/1999  | 0.282     | 0.147      | 0.021      | 966       | 155      | 0            | 86/14     | 5749       | 1279     | 7.5  | 1850                  |  |
| 10/8/1999  | 0.303     | 0.141      | 0.030      | 1117      | 619      | 0            | 64/36     | 8013       | 1462     | 8    | 1850                  |  |
| 10/9/1999  | 0.326     | 0.143      | 0.032      | 1221      | 613      | 0            | 66/34     | 8325       | 1516     | 6.7  | 1850                  |  |
| 10/10/1999   | 0.433     | 0.151      | 0.034      | 785       | 812      | 0            | 49/51     | 7063       | 1207     | 7.7  | 1850                  |  |
| 10/11/1999   | 0.286     | 0.145      | 0.025      | 831       | 816      | 0            | 50/50     | 7397       | 1329     | 7.4  | 1850                  |  |
| 10/12/1999   | 0.224     | 0.145      | 0.017      | 780       | 605      | 0            | 56/44     | 7396       | 1644     | 7    | 1850                  |  |
| 10/13/1999   | 0.216     | 0.145      | 0.019      | 715       | 1011     | 0            | 41/59     | 8912       | 1627     | 5.9  | 1850                  |  |
| 10/14/1999   | 0.230     | 0.143      | 0.015      | 571       | 1188     | 0            | 32/68     | 9107       | 1618     | 5.6  | 1850                  |  |
| 10/15/1999   | 0.381     | 0.151      | 0.022      | 769       | 899      | 6943         | 46/54     | 7690       | 1216     | 8.4  | 1850                  |  |
| 10/16/1999   | 0.733     | 0.170      | 0.022      | 1248      | 155      | 6591         | 89/11     | 5064       | 1147     | 10.7 | 1850                  |  |
| 10/23/1999   | 0.286     | 0.142      | 0.024      | 1225      | 0        | 0            | 100/0     | 5839       | 770      | 8.9  | 1850                  |  |
| 10/24/2000   | 0.261     | 0.142      | 0.015      | 1253      | 0        | 0            | 100/0     | 5900       | 805      | 9.4  | 1850                  |  |
| 10/25/1999   | 0.311     | 0.145      | 0.027      | 1236      | 348      | 0            | 78/22     | 7317       | 1147     | 7.9  | 1850                  |  |
| 10/26/1999   | 0.266     | 0.140      | 0.034      | 1053      | 331      | 736          | 76/24     | 6358       | 1197     | 8.3  | 1850                  |  |
| 10/27/1999   | 0.473     | 0.143      | 0.032      | 873       | 743      | 0            | 54/46     | 7929       | 1425     | 6.9  | 1850                  |  |
| 10/28/1999   | 0.552     | 0.142      | 0.020      | 670       | 1281     | 0            | 34/66     | 9537       | 1454     | 5.6  | 1850                  |  |
| 10/29/1999   | 0.535     | 0.141      | 0.023      | 544       | 1464     | 0            | 27/73     | 9378       | 1473     | 5.5  | 1850                  |  |
| 10/30/1999   | 0.399     | 0.141      | 0.012      | 519       | 1439     | 0            | 26/74     | 9315       | 1443     | 6    | 1850                  |  |
| 10/31/1999   | 0.336     | 0.142      | 0.011      | 503       | 1406     | 0            | 26/74     | 9613       | 1389     | 3.9  | 1850                  |  |
| 11/1/1999  | 0.316     | 0.142      | 0.018      | 618       | 1246     | 1351         | 33/67     | 9401       | 1475     | 5.4  | 1850                  |  |
| 11/2/1999  | 0.256     | 0.144      | 0.025      | 768       | 1075     | 322          | 42/58     | 9086       | 1576     | 6    | 1850                  |  |
| 11/3/1999  | 0.324     | 0.143      | 0.014      | 624       | 1334     | 272          | 32/68     | 9479       | 1529     | 5.6  | 1850                  |  |
| 11/4/1999  | 0.347     | 0.143      | 0.011      | 428       | 1550     | 1358         | 22/78     | na         | na       | 5.5  | 1850                  |  |

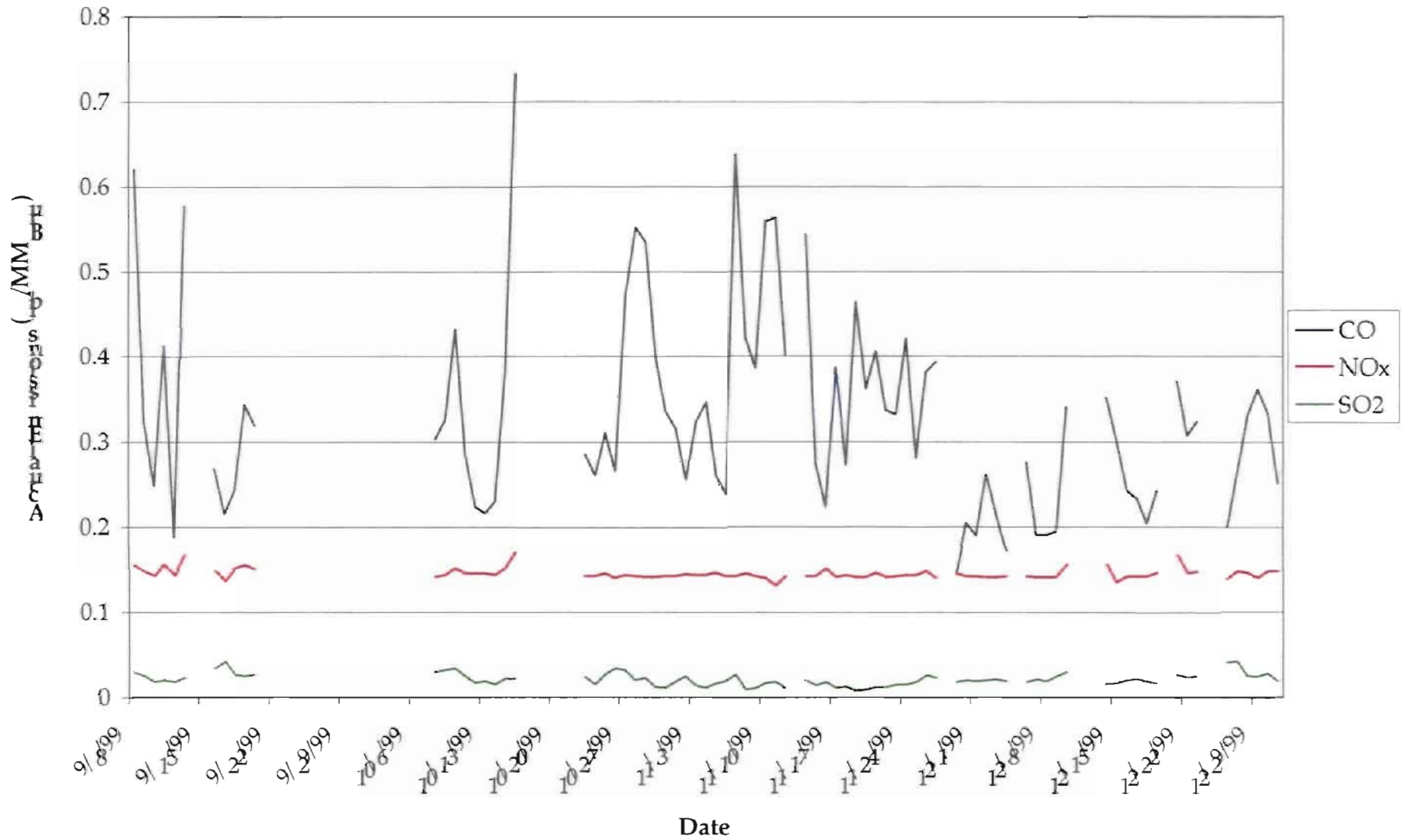
Okeelanta Cogeneration Facility - Boiler A

| Date:      | CO-24 hr. | NOx-24 hr. | SO2-24 hr. | Wood/tons | Bag/tons | Fuel Oil/gal | Wood/Bag% | Steam Prod. | MW Prod. | O2  | F-factor |
|------------|-----------|------------|------------|-----------|----------|--------------|-----------|-------------|----------|-----|----------|
| 11/5/1999  | 0.261     | 0.146      | 0.016      | 538       | 1365     | 0            | 28/72     | na          | na       | 4.9 | 1850     |
| 11/6/1999  | 0.238     | 0.142      | 0.019      | 647       | 1180     | 119          | 35/65     | na          | na       | 5.1 | 1850     |
| 11/7/1999  | 0.638     | 0.142      | 0.027      | 1083      | 1032     | 0            | 51/49     | 10505       | 578      | 3.9 | 1850     |
| 11/8/1999  | 0.422     | 0.145      | 0.009      | 419       | 1551     | 0            | 21/79     | 9282        | 1470     | 5.4 | 1850     |
| 11/9/1999  | 0.386     | 0.142      | 0.011      | 284       | 1702     | 1282         | 14/86     | 9220        | 1414     | 5.2 | 1850     |
| 11/10/1999 | 0.559     | 0.140      | 0.017      | 240       | 1596     | 1416         | 13/87     | 8650        | 1419     | 5.3 | 1850     |
| 11/11/1999 | 0.564     | 0.131      | 0.018      | 241       | 1701     | 535          | 12/88     | 9067        | 1416     | 4.6 | 1850     |
| 11/12/1999 | 0.402     | 0.142      | 0.011      | 204       | 1695     | 577          | 11/89     | 8499        | 1395     | 5.3 | 1850     |
| 11/14/1999 | 0.544     | 0.142      | 0.020      | 284       | 1442     | 2069         | 16/84     | 8324        | 1342     | 6.7 | 1850     |
| 11/15/1999 | 0.275     | 0.142      | 0.014      | 184       | 1787     | 424          | 9/91      | 9591        | 1437     | 5.3 | 1850     |
| 11/16/1999 | 0.223     | 0.151      | 0.018      | 352       | 1546     | 0            | 18/82     | 9637        | 1470     | 5.5 | 1850     |
| 11/17/1999 | 0.387     | 0.141      | 0.011      | 285       | 1676     | 0            | 14/86     | 9706        | 1589     | 4.6 | 1850     |
| 11/18/1999 | 0.273     | 0.143      | 0.013      | 274       | 1621     | 0            | 14/86     | 9724        | 1505     | 5.2 | 1850     |
| 11/19/1999 | 0.464     | 0.141      | 0.008      | 0         | 1889     | 978          | 0/100     | 9733        | 1502     | 4.9 | 1850     |
| 11/20/1999 | 0.362     | 0.141      | 0.009      | 165       | 1812     | 0            | 8/92      | 9734        | 1444     | 4.9 | 1850     |
| 11/21/1999 | 0.406     | 0.146      | 0.012      | 312       | 1659     | 0            | 16/84     | 9870        | 1549     | 4.8 | 1850     |
| 11/22/1999 | 0.337     | 0.141      | 0.012      | 342       | 1628     | 0            | 17/83     | 9808        | 1610     | 4.8 | 1850     |
| 11/23/1999 | 0.332     | 0.142      | 0.015      | 418       | 1533     | 0            | 21/79     | 9949        | 1574     | 4.7 | 1850     |
| 11/24/1999 | 0.421     | 0.143      | 0.015      | 262       | 1545     | 0            | 14/86     | 8611        | 1469     | 6   | 1850     |
| 11/25/1999 | 0.281     | 0.143      | 0.018      | 181       | 1807     | 0            | 9/91      | 9309        | 1353     | 5.5 | 1850     |
| 11/26/1999 | 0.382     | 0.148      | 0.026      | 300       | 1455     | 4001         | 17/83     | 8595        | 1126     | 6.4 | 1850     |
| 11/27/1999 | 0.393     | 0.140      | 0.023      | 230       | 1830     | 525          | 11/89     | 9096        | 1307     | 5.3 | 1850     |
| 11/29/1999 | 0.145     | 0.145      | 0.018      | 356       | 1418     | 0            | 20/80     | 9588        | 1403     | 5.8 | 1850     |
| 11/30/1999 | 0.205     | 0.142      | 0.020      | 315       | 1606     | 0            | 16/84     | 9739        | 846      | 5   | 1850     |
| 12/1/1999  | 0.190     | 0.142      | 0.019      | 274       | 1795     | 436          | 13/87     | 9673        | 1449     | 5.5 | 1850     |
| 12/2/1999  | 0.262     | 0.141      | 0.020      | 309       | 1755     | 0            | 15/85     | 9503        | 1542     | 5.5 | 1850     |
| 12/3/1999  | 0.215     | 0.141      | 0.021      | 326       | 1748     | 0            | 16/84     | 9490        | 1648     | 5.6 | 1850     |
| 12/4/1999  | 0.172     | 0.142      | 0.019      | 164       | 1856     | 0            | 8/92      | 9443        | 1552     | 5.6 | 1850     |
| 12/6/1999  | 0.276     | 0.142      | 0.018      | 270       | 1741     | 348          | 13/87     | 9239        | 1592     | 6   | 1850     |
| 12/7/1999  | 0.191     | 0.141      | 0.021      | 252       | 1825     | 0            | 12/88     | 9448        | 1525     | 5.5 | 1850     |
| 12/8/1999  | 0.191     | 0.141      | 0.019      | 103       | 1954     | 0            | 5/95      | 9388        | 1543     | 5.6 | 1850     |
| 12/9/1999  | 0.195     | 0.141      | 0.025      | 0         | 2030     | 0            | 0/100     | 9434        | 1571     | 5.5 | 1850     |
| 12/10/1999 | 0.341     | 0.156      | 0.030      | 213       | 1641     | 211          | 11/89     | 8436        | 1342     | 7   | 1850     |
| 12/14/1999 | 0.352     | 0.156      | 0.016      | 73        | 2016     | 0            | 3/97      | 9409        | 1500     | 5.4 | 1850     |
| 12/15/1999 | 0.302     | 0.135      | 0.017      | 320       | 1793     | 0            | 15/85     | 9369        | 1521     | 5.6 | 1850     |

| Okeelanta Cogeneration Facility - Boiler A  |           |          |            |           |          |              |           |             |          | Table 1 - Page 3 of 3 |          |
|---|-----------|----------|------------|-----------|----------|--------------|-----------|-------------|----------|-----------------------|----------|
| Date:   | CO-24 hr. | NOx-24Hr | SO2-24 hr. | Wood/tons | Bag/tons | Fuel Oil/gal | Wood/Bag% | Steam Prod. | MW Prod. | O2                    | F-factor |
| 12/16/1999  | 0.243     | 0.142    | 0.020      | 0         | 2072     | 0            | 0/100     | 9387        | 1540     | 5.8                   | 1850     |
| 12/17/1999  | 0.233     | 0.142    | 0.022      | 0         | 2093     | 0            | 0/100     | 9481        | 1528     | 5.7                   | 1850     |
| 12/18/1999  | 0.204     | 0.142    | 0.019      | 0         | 2038     | 0            | 0/100     | 9345        | 1558     | 5.9                   | 1850     |
| 12/19/1999  | 0.242     | 0.146    | 0.017      | 0         | 2095     | 0            | 0/100     | 9493        | 1519     | 5.8                   | 1850     |
| 12/21/1999  | 0.371     | 0.167    | 0.027      | 480       | 1114     | 3443         | 30/70     | 7837        | 504      | 7.7                   | 1850     |
| 12/22/1999  | 0.307     | 0.146    | 0.024      | 0         | 2040     | 0            | 0/100     | 9368        | 1401     | 5.5                   | 1850     |
| 12/23/1999  | 0.324     | 0.147    | 0.025      | 0         | 2053     | 0            | 0/100     | 9426        | 1303     | 5.5                   | 1850     |
| 12/26/1999  | 0.200     | 0.138    | 0.041      | 354       | 1654     | 0            | 18/82     | 8299        | 789      | 7.2                   | 1850     |
| 12/27/1999  | 0.267     | 0.147    | 0.042      | 513       | 1315     | 1040         | 28/72     | 8879        | 867      | 7.2                   | 1850     |
| 12/28/1999  | 0.331     | 0.145    | 0.025      | 0         | 2022     | 0            | 0/100     | 9287        | 1422     | 5.9                   | 1850     |
| 12/29/1999  | 0.362     | 0.139    | 0.024      | 0         | 2106     | 383          | 0/100     | 9167        | 1460     | 6.3                   | 1850     |
| 12/30/1999  | 0.334     | 0.147    | 0.028      | 0         | 1991     | 2476         | 0/100     | 9569        | 1168     | 5.9                   | 1850     |
| 12/31/1999  | 0.251     | 0.147    | 0.019      | 75        | 1943     | 0            | 4/96      | 9277        | 1582     | 6.2                   | 1850     |
| Note:   |           |          |            |           |          |              |           |             |          |                       |          |
| 1. CO, NOx and SO2 are expressed in lbs/MMBtu   |           |          |            |           |          |              |           |             |          |                       |          |
| 2. Wood/tons = Total tons of wood fuel fired in 24-hour period                              |           |          |            |           |          |              |           |             |          |                       |          |
| 3. Bag/tons = Total tons of bagasse fuel fired in 24-hour period                            |           |          |            |           |          |              |           |             |          |                       |          |
| 4. Fuel Oil/gal = Total gallons of fuel oil fired in 24-hour period                         |           |          |            |           |          |              |           |             |          |                       |          |
| 5. Wood/Bag% = Percentage of wood versus bagasse fired in 24-hour period                    |           |          |            |           |          |              |           |             |          |                       |          |
| 6. Steam Prod = total steam production expressed in k/lbs in 24-hour period                 |           |          |            |           |          |              |           |             |          |                       |          |
| 7. MW Prod = total gross megawatts generated in 24-hour period (includes all three boilers) |           |          |            |           |          |              |           |             |          |                       |          |
| 8. O2 = average percent oxygen for 24-hour period   |           |          |            |           |          |              |           |             |          |                       |          |
| 9. F-factor = scf/MMBtu for biomass fuel programmed into CEMS                               |           |          |            |           |          |              |           |             |          |                       |          |



Figure 1. Boiler A: Actual Daily CO, NO<sub>x</sub> and SO<sub>2</sub> Emissions  
September 8, 1999 - December 31, 1999



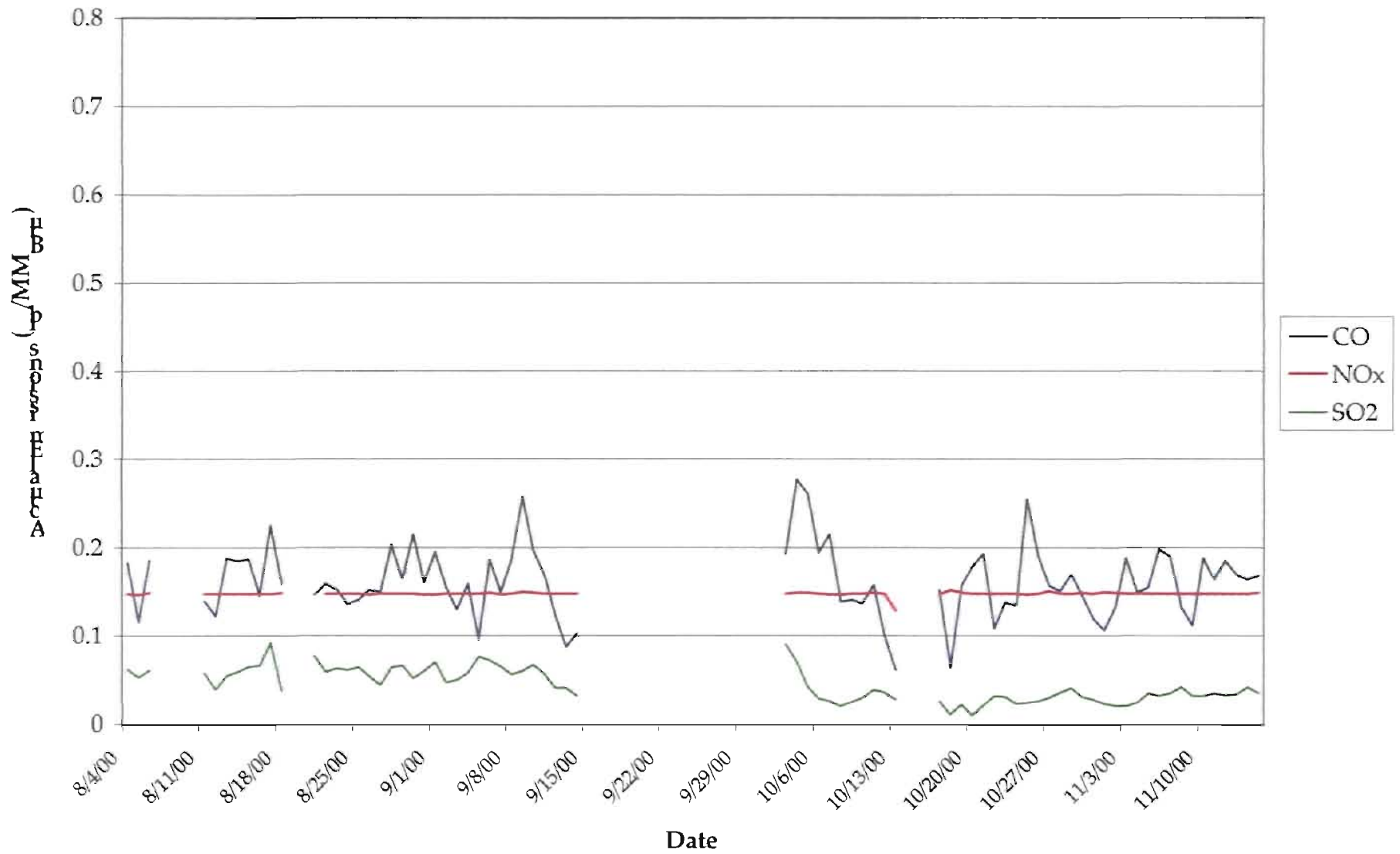
| Okeelanta Cogeneration Facility - Boiler A                         |           |            |            |           |          |              |           |            |          |     | Table 3 - Page 1 of 3 |
|--|-----------|------------|------------|-----------|----------|--------------|-----------|------------|----------|-----|-----------------------|
| Sulfur Dioxide (SO2) excess emissions 9/11/00, 10/3/00 and 10/4/00 |           |            |            |           |          |              |           |            |          |     |                       |
| Date:  | CO-24 hr. | NOx-24 hr. | SO2-24 hr. | Wood/tons | Bag/tons | Fuel Oil/gal | Wood/Bag% | Steam Prod | MW Prod. | O2  | F-factor              |
| 8/4/2000   | 0.183     | 0.147      | 0.062      | 1106      | 591      | 288          | 65/35     | 9334       | 1668     | 5.6 | 1850                  |
| 8/5/2000   | 0.115     | 0.146      | 0.053      | 1133      | 559      | 1623         | 67/33     | 9188       | 1683     | 5.5 | 1850                  |
| 8/6/2000   | 0.185     | 0.148      | 0.061      | 884       | 540      | 485          | 62/38     | 7266       | 1736     | 5.1 | 1850                  |
| 8/8/2000   | 0.126     | 0.146      | 0.045      | 1012      | 569      | 48           | 64/36     | 7855       | 1685     | 6.7 | 1850                  |
| 8/11/2000  | 0.139     | 0.147      | 0.058      | 1142      | 718      | 175          | 61/39     | 9281       | 1704     | 5.6 | 1850                  |
| 8/12/2000  | 0.122     | 0.147      | 0.039      | 1091      | 784      | 0            | 58/42     | 9213       | 1713     | 5.4 | 1850                  |
| 8/13/2000  | 0.188     | 0.147      | 0.055      | 1142      | 712      | 0            | 62/38     | 9371       | 1740     | 5.4 | 1850                  |
| 8/14/2000  | 0.185     | 0.147      | 0.059      | 1109      | 699      | 0            | 61/39     | 9406       | 1740     | 5.7 | 1850                  |
| 8/15/2000  | 0.187     | 0.147      | 0.065      | 1101      | 766      | 0            | 59/41     | 9456       | 1764     | 6   | 1850                  |
| 8/16/2000  | 0.145     | 0.147      | 0.066      | 1095      | 806      | 0            | 58/42     | 9536       | 1762     | 5.8 | 1850                  |
| 8/17/2000  | 0.225     | 0.147      | 0.092      | 1137      | 704      | 430          | 62/38     | 9509       | 1701     | 6.2 | 1850                  |
| 8/18/2000  | 0.159     | 0.148      | 0.038      | 769       | 588      | 548          | 57/43     | 6961       | 1401     | 7   | 1850                  |
| 8/21/2000  | 0.146     | na         | 0.077      | 1036      | 708      | 4032         | 59/41     | 9165       | 1694     | 5.5 | 1850                  |
| 8/22/2000  | 0.159     | 0.147      | 0.059      | 1137      | 681      | 0            | 63/37     | 9430       | 1745     | 5.6 | 1850                  |
| 8/23/2000  | 0.152     | 0.147      | 0.063      | 1137      | 704      | 0            | 62/38     | 9424       | 1773     | 5.3 | 1850                  |
| 8/24/2000  | 0.136     | 0.147      | 0.061      | 1192      | 744      | 0            | 62/38     | 9580       | 1786     | 5.7 | 1850                  |
| 8/25/2000  | 0.140     | 0.147      | 0.064      | 1125      | 823      | 0            | 58/42     | 9601       | 1793     | 5.4 | 1850                  |
| 8/26/2000  | 0.152     | 0.146      | 0.054      | 1123      | 751      | 0            | 60/40     | 9532       | 1778     | 5.7 | 1850                  |
| 8/27/2000  | 0.149     | 0.147      | 0.044      | 1089      | 738      | 286          | 60/40     | 9294       | 1748     | 5.7 | 1850                  |
| 8/28/2000  | 0.203     | 0.147      | 0.064      | 907       | 610      | 613          | 60/40     | 7111       | 1481     | 6.4 | 1850                  |
| 8/29/2000  | 0.164     | 0.147      | 0.066      | 1117      | 746      | 0            | 60/40     | 9445       | 1758     | 5.5 | 1850                  |
| 8/30/2000  | 0.215     | 0.147      | 0.052      | 1022      | 855      | 167          | 54/46     | 9598       | 1784     | 5.5 | 1850                  |
| 8/31/2000  | 0.160     | 0.146      | 0.060      | 1158      | 647      | 1151         | 64/36     | 9476       | 1769     | 6   | 1850                  |
| 9/1/2000   | 0.195     | 0.146      | 0.070      | 1069      | 812      | 0            | 57/43     | 9397       | 1794     | 5.4 | 1850                  |
| 9/2/2000   | 0.154     | 0.147      | 0.047      | 944       | 919      | 363          | 51/49     | 8657       | 1780     | 6.1 | 1850                  |
| 9/3/2000   | 0.129     | 0.147      | 0.050      | 957       | 861      | 0            | 53/47     | 8671       | 1765     | 6.3 | 1850                  |
| 9/4/2000   | 0.158     | 0.147      | 0.058      | 948       | 897      | 343          | 51/49     | 8629       | 1759     | 5.5 | 1850                  |
| 9/5/2000   | 0.096     | 0.147      | 0.076      | 1004      | 368      | 2548         | 73/27     | 7510       | 1554     | 7.5 | 1850                  |
| 9/6/2000   | 0.186     | 0.148      | 0.072      | 1151      | 527      | 1500         | 69/31     | 8144       | 1669     | 6.7 | 1850                  |
| 9/7/2000   | 0.148     | 0.146      | 0.065      | 1274      | 313      | 0            | 80/20     | 8183       | 1687     | 6.2 | 1850                  |
| 9/8/2000   | 0.186     | 0.147      | 0.056      | 1087      | 742      | 0            | 59/41     | 8647       | 1788     | 5.3 | 1850                  |
| 9/9/2000   | 0.257     | 0.149      | 0.060      | 1205      | 585      | 959          | 67/33     | 8277       | 1739     | 5.8 | 1850                  |
| 9/10/2000  | 0.197     | 0.148      | 0.067      | 1258      | 605      | 84           | 68/32     | 8467       | 1751     | 5.8 | 1850                  |
| 9/11/2000  | 0.169     | 0.147      | 0.057      | 1122      | 653      | 0            | 63/37     | 8640       | 1790     | 5.6 | 1850                  |

Okeelanta Cogeneration Facility - Boiler A

| Date:      | CO-24 hr. | NOx-24 hr. | SO2-24 hr. | Wood/tons | Bag/tons | Fuel Oil/gal | Wood/Bag% | Steam Prod. | MW Prod. | O2  | F-factor |
|------------|-----------|------------|------------|-----------|----------|--------------|-----------|-------------|----------|-----|----------|
| 9/12/2000  | 0.123     | 0.147      | 0.041      | 1129      | 569      | 0            | 66/34     | 8689        | 1790     | 6.3 | 1850     |
| 9/13/2000  | 0.087     | 0.147      | 0.041      | 1045      | 707      | 0            | 60/40     | 8497        | 1782     | 6.2 | 1850     |
| 9/14/2000  | 0.103     | 0.147      | 0.032      | 964       | 784      | 0            | 55/45     | 8691        | 1791     | 6.1 | 1850     |
| 10/1/2000  | 0.094     | 0.148      | 0.064      | 1278      | 0        | 0            | 100/0     | 5678        | 564      | 7.8 | 1850     |
| 10/3/2000  | 0.193     | 0.147      | 0.090      | 1519      | 0        | 0            | 100/0     | 9176        | 1783     | 5.1 | 1850     |
| 10/4/2000  | 0.277     | 0.148      | 0.070      | 1549      | 405      | 0            | 79/21     | 7943        | 1732     | 5.1 | 1850     |
| 10/5/2000  | 0.261     | 0.148      | 0.042      | 1369      | 359      | 1071         | 79/21     | 7524        | 1573     | 5.1 | 1850     |
| 10/6/2000  | 0.194     | 0.147      | 0.029      | 1403      | 462      | 0            | 75/25     | 7513        | 1771     | 5.9 | 1850     |
| 10/7/2000  | 0.215     | 0.146      | 0.026      | 1309      | 237      | 0            | 85/15     | 6804        | 1620     | 6.3 | 1850     |
| 10/8/2000  | 0.138     | 0.146      | 0.020      | 1132      | 523      | 840          | 68/32     | 6828        | 1651     | 6.7 | 1850     |
| 10/9/2000  | 0.140     | 0.147      | 0.025      | 1191      | 410      | 0            | 74/26     | 7178        | 1781     | 6.3 | 1850     |
| 10/10/2000 | 0.137     | 0.147      | 0.030      | 1259      | 483      | 0            | 72/28     | 7286        | 1721     | 6   | 1850     |
| 10/11/2000 | 0.157     | 0.148      | 0.039      | 1288      | 604      | 0            | 68/32     | 7460        | 1749     | 5.6 | 1850     |
| 10/12/2000 | 0.100     | 0.147      | 0.036      | 1208      | 627      | 765          | 66/34     | 7256        | 1703     | 5.8 | 1850     |
| 10/13/2000 | 0.061     | 0.128      | 0.028      | 1277      | 79       | 175          | 94/6      | 5325        | 1626     | 6.5 | 1850     |
| 10/17/2000 | 0.151     | 0.146      | 0.026      | 916       | 680      | 2687         | 57/43     | 6880        | 1753     | 6   | 1850     |
| 10/18/2000 | 0.064     | 0.151      | 0.011      | 814       | 690      | 804          | 54/46     | 6392        | 1754     | 6.4 | 1850     |
| 10/19/2000 | 0.156     | 0.148      | 0.022      | 874       | 917      | 3435         | 49/51     | 7731        | 1607     | 5.5 | 1850     |
| 10/20/2000 | 0.178     | 0.147      | 0.010      | 562       | 1289     | 0            | 30/70     | 7778        | 1591     | 5.5 | 1850     |
| 10/21/2000 | 0.193     | 0.147      | 0.021      | 575       | 1308     | 0            | 31/69     | 7688        | 1591     | 5.5 | 1850     |
| 10/22/2000 | 0.108     | 0.147      | 0.032      | 629       | 1286     | 0            | 33/67     | 7986        | 1604     | 4.8 | 1850     |
| 10/23/2000 | 0.138     | 0.147      | 0.031      | 593       | 1352     | 76           | 30/70     | 9274        | 1567     | 4.9 | 1850     |
| 10/24/2000 | 0.134     | 0.147      | 0.023      | 861       | 789      | 11080        | 52/48     | 9218        | 1584     | 6.1 | 1850     |
| 10/25/2000 | 0.255     | 0.146      | 0.024      | 591       | 1452     | 304          | 29/71     | 9435        | 1618     | 5   | 1850     |
| 10/26/2000 | 0.191     | 0.147      | 0.026      | 584       | 1412     | 0            | 29/71     | 9325        | 1616     | 4.8 | 1850     |
| 10/27/2000 | 0.156     | 0.150      | 0.030      | 668       | 1352     | 53           | 33/67     | 9470        | 1596     | 4.9 | 1850     |
| 10/28/2000 | 0.150     | 0.147      | 0.036      | 630       | 1335     | 384          | 32/68     | 9343        | 1584     | 5.3 | 1850     |
| 10/29/2000 | 0.169     | 0.147      | 0.041      | 642       | 1150     | 2767         | 36/64     | 9270        | 1547     | 5.3 | 1850     |
| 10/30/2000 | 0.145     | 0.148      | 0.031      | 560       | 1392     | 0            | 29/71     | 9324        | 1671     | 4.9 | 1850     |
| 10/31/2000 | 0.119     | 0.147      | 0.028      | 559       | 1383     | 0            | 29/71     | 9378        | 1756     | 4.9 | 1850     |
| 11/1/2000  | 0.106     | 0.149      | 0.023      | 541       | 1433     | 0            | 27/73     | 9372        | 1761     | 4.8 | 1850     |
| 11/2/2000  | 0.132     | 0.148      | 0.021      | 530       | 1435     | 0            | 27/73     | 9509        | 1762     | 4.4 | 1850     |
| 11/3/2000  | 0.188     | 0.147      | 0.020      | 526       | 1390     | 320          | 27/73     | 9521        | 1743     | 4   | 1850     |
| 11/4/2000  | 0.148     | 0.147      | 0.024      | 492       | 1505     | 0            | 25/75     | 9602        | 1768     | 4   | 1850     |
| 11/5/2000  | 0.154     | 0.147      | 0.035      | 565       | 1416     | 0            | 29/71     | 9542        | 1757     | 4.2 | 1850     |

| Okeelanta Cogeneration Facility - Boiler A  |           |          |            |           |          |              |           |             |          |     | Table 3 - Page 3 of 3 |
|---|-----------|----------|------------|-----------|----------|--------------|-----------|-------------|----------|-----|-----------------------|
| Date:   | CO-24 hr. | NOx-24Hr | SO2-24 hr. | Wood/tons | Bag/tons | Fuel Oil/gal | Wood/Bag% | Steam Prod. | MW Prod. | O2  | F-factor              |
| 11/6/2000   | 0.198     | 0.147    | 0.032      | 524       | 1493     | 178          | 26/74     | 9461        | 1764     | 4   | 1850                  |
| 11/7/2000   | 0.190     | 0.147    | 0.035      | 545       | 1508     | 28           | 27/73     | 9500        | 1768     | 4   | 1850                  |
| 11/8/2000   | 0.132     | 0.147    | 0.042      | 589       | 1452     | 0            | 29/71     | 9540        | 1761     | 4.3 | 1850                  |
| 11/9/2000   | 0.111     | 0.147    | 0.032      | 521       | 1501     | 0            | 26/74     | 9570        | 1773     | 3.9 | 1850                  |
| 11/10/2000  | 0.188     | 0.147    | 0.032      | 508       | 1495     | 0            | 25/75     | 9386        | 1780     | 4.5 | 1850                  |
| 11/11/2000  | 0.163     | 0.147    | 0.035      | 558       | 1483     | 0            | 27/73     | 9383        | 1786     | 5.1 | 1850                  |
| 11/12/2000  | 0.185     | 0.147    | 0.033      | 539       | 1549     | 0            | 26/74     | 9440        | 1782     | 5.1 | 1850                  |
| 11/13/2000  | 0.169     | 0.147    | 0.034      | 505       | 1587     | 0            | 24/76     | 9357        | 1777     | 5.1 | 1850                  |
| 11/14/2000  | 0.164     | 0.147    | 0.042      | 607       | 1464     | 0            | 29/71     | 9360        | 1777     | 5.2 | 1850                  |
| 11/15/2000  | 0.168     | 0.148    | 0.035      | 642       | 1368     | 0            | 32/68     | 9232        | 1771     | 4.6 | 1850                  |
| Note:   |           |          |            |           |          |              |           |             |          |     |                       |
| 1. CO, NOx and SO2 are expressed in lbs/MMBtu   |           |          |            |           |          |              |           |             |          |     |                       |
| 2. Wood/tons = Total tons of wood fuel fired in 24-hour period                              |           |          |            |           |          |              |           |             |          |     |                       |
| 3. Bag/tons = Total tons of bagasse fuel fired in 24-hour period                            |           |          |            |           |          |              |           |             |          |     |                       |
| 4. Fuel Oil/gal = Total gallons of fuel oil fired in 24-hour period                         |           |          |            |           |          |              |           |             |          |     |                       |
| 5. Wood/Bag% = Percentage of wood versus bagasse fired in 24-hour period                    |           |          |            |           |          |              |           |             |          |     |                       |
| 6. Steam Prod = total steam production expressed in k/lbs in 24-hour period                 |           |          |            |           |          |              |           |             |          |     |                       |
| 7. MW Prod = total gross megawatts generated in 24-hour period (includes all three boilers) |           |          |            |           |          |              |           |             |          |     |                       |
| 8. O2 = average percent oxygen for 24-hour period   |           |          |            |           |          |              |           |             |          |     |                       |
| 9. F-factor = scf/MMBtu for biomass fuel programmed into CEMS                               |           |          |            |           |          |              |           |             |          |     |                       |

**Figure 2. Boiler A: Actual Daily CO, NO<sub>x</sub> and SO<sub>2</sub> Emissions  
August 4, 2000 - November 15, 2000**



| Okeelanta Cogeneration Facility - Boiler B                    |           |            |            |           |          |              |           |            |          |     | Table 4 - Page 1 of 3 |  |
|---|-----------|------------|------------|-----------|----------|--------------|-----------|------------|----------|-----|-----------------------|--|
| Sulfur Dioxide (SO2) excess emissions 6/23/00 through 7/17/00 |           |            |            |           |          |              |           |            |          |     |                       |  |
| Date:   | CO-24 hr. | NOx-24 hr. | SO2-24 hr. | Wood/tons | Bag/tons | Fuel Oil/gal | Wood/Bag% | Steam Prod | MW Prod. | O2  | F-factor              |  |
| 5/27/2000   | 0.261     | 0.145      | 0.032      | 585       | 922      | 0            | 39/61     | 7419       | 1730     | 9.5 | 1850                  |  |
| 5/28/2000   | 0.212     | 0.147      | 0.050      | 787       | 697      | 0            | 53/47     | 8290       | 1743     | 8.8 | 1850                  |  |
| 5/29/2000   | 0.195     | 0.147      | 0.064      | 926       | 538      | 0            | 63/37     | 8470       | 1767     | 8.5 | 1850                  |  |
| 5/30/2000   | 0.207     | 0.147      | 0.042      | 1002      | 512      | 0            | 66/34     | 7668       | 1754     | 8.6 | 1850                  |  |
| 5/31/2000   | 0.179     | 0.146      | 0.025      | 874       | 615      | 0            | 59/41     | 7129       | 1733     | 9.1 | 1850                  |  |
| 6/1/2000  | 0.203     | 0.147      | 0.020      | 961       | 340      | 472          | 74/26     | 6926       | 1707     | 9.3 | 1850                  |  |
| 6/2/2000  | 0.262     | 0.146      | 0.032      | 1030      | 236      | 206          | 81/19     | 7792       | 1707     | 8.6 | 1850                  |  |
| 6/3/2000  | 0.209     | 0.147      | 0.055      | 982       | 426      | 0            | 70/30     | 8774       | 1717     | 8.5 | 1850                  |  |
| 6/4/2000  | 0.258     | 0.147      | 0.067      | 1026      | 334      | 0            | 75/25     | 8845       | 1730     | 8.5 | 1850                  |  |
| 6/5/2000  | 0.264     | 0.147      | 0.062      | 1027      | 434      | 0            | 70/30     | 8831       | 1718     | 8.5 | 1850                  |  |
| 6/6/2000  | 0.218     | 0.147      | 0.046      | 1130      | 192      | 0            | 85/15     | 9055       | 1693     | 8.2 | 1850                  |  |
| 6/7/2000  | 0.128     | 0.146      | 0.054      | 1185      | 36       | 0            | 97/3      | 8897       | 1752     | 8.2 | 1850                  |  |
| 6/8/2000  | 0.103     | 0.147      | 0.045      | 1102      | 281      | 175          | 80/20     | 8930       | 1724     | 8   | 1850                  |  |
| 6/9/2000  | 0.136     | 0.147      | 0.053      | 1411      | 0        | 65           | 100/0     | 9069       | 1741     | 8   | 1850                  |  |
| 6/10/2000   | 0.178     | 0.146      | 0.063      | 1440      | 0        | 0            | 100/0     | 8947       | 1722     | 7.9 | 1850                  |  |
| 6/11/2000   | 0.184     | 0.146      | 0.063      | 1444      | 0        | 0            | 100/0     | 8959       | 1687     | 7.6 | 1850                  |  |
| 6/12/2000   | 0.295     | 0.147      | 0.091      | 1316      | 0        | 375          | 100/0     | 9114       | 772      | 7.1 | 1850                  |  |
| 6/13/2000   | 0.294     | 0.147      | 0.097      | 1388      | 0        | 724          | 100/0     | 9011       | 1691     | 7.9 | 1850                  |  |
| 6/14/2000   | 0.226     | 0.146      | 0.077      | 1245      | 0        | 912          | 100/0     | 8091       | 1470     | 8.6 | 1850                  |  |
| 6/15/2000   | 0.218     | 0.147      | 0.102      | 1416      | 0        | 55           | 100/0     | 8916       | 1622     | 7.6 | 1850                  |  |
| 6/16/2000   | 0.357     | 0.146      | 0.118      | 1596      | 0        | 69           | 100/0     | 9725       | 752      | 6.8 | 1850                  |  |
| 6/17/2000   | 0.238     | 0.149      | 0.073      | 1249      | 0        | 84           | 100/0     | 9003       | 1210     | 8   | 1850                  |  |
| 6/18/2000   | 0.151     | 0.146      | 0.089      | 1068      | 0        | 138          | 100/0     | 8849       | 1631     | 7.9 | 1850                  |  |
| 6/19/2000   | 0.258     | 0.146      | 0.080      | 913       | 371      | 0            | 71/29     | 8596       | 1638     | 8.1 | 1850                  |  |
| 6/20/2000   | 0.232     | 0.147      | 0.058      | 1186      | 293      | 0            | 80/20     | 8499       | 1654     | 8   | 1850                  |  |
| 6/21/2000   | 0.272     | 0.154      | 0.063      | 985       | 809      | 1163         | 56/44     | 7954       | 1519     | 8.5 | 1850                  |  |
| 6/22/2000   | 0.201     | 0.146      | 0.067      | 966       | 603      | 0            | 62/38     | 8759       | 1701     | 8.1 | 1850                  |  |
| 6/23/2000   | 0.247     | 0.148      | 0.060      | 767       | 432      | 428          | 64/36     | 8757       | 1678     | 8.3 | 1850                  |  |
| 6/24/2000   | 0.152     | 0.146      | 0.070      | 1000      | 493      | 0            | 67/33     | 9204       | 1716     | 7.9 | 1850                  |  |
| 6/25/2000   | 0.202     | 0.146      | 0.050      | 1112      | 432      | 124          | 72/28     | 9023       | 1686     | 7.7 | 1850                  |  |
| 6/26/2000   | 0.316     | 0.146      | 0.023      | 968       | 405      | 538          | 71/29     | 8837       | 1699     | 8.1 | 1850                  |  |
| 6/27/2000   | 0.263     | 0.147      | 0.045      | 1042      | 477      | 0            | 69/31     | 9108       | 1710     | 7.6 | 1850                  |  |
| 6/28/2000   | 0.220     | 0.147      | 0.062      | 975       | 508      | 2449         | 66/34     | 8723       | 1666     | 8.4 | 1850                  |  |
| 6/29/2000   | 0.241     | 0.148      | 0.072      | 1109      | 552      | 913          | 67/33     | 9145       | 1723     | 8.1 | 1850                  |  |

Okeelanta Cogeneration Facility - Boiler B

Table 4 - Page 2 of 3

| Date:     | CO-24 hr. | NOx-24 hr. | SO2-24 hr. | Wood/tons | Bag/tons | Fuel Oil/gal | Wood/Bag% | Steam Prod. | MW Prod. | O2  | F-factor |
|-----------|-----------|------------|------------|-----------|----------|--------------|-----------|-------------|----------|-----|----------|
| 6/30/2000 | 0.190     | 0.147      | 0.057      | 1177      | 491      | 0            | 71/29     | 9453        | 1750     | 7.8 | 1850     |
| 7/1/2000  | 0.344     | 0.146      | 0.058      | 1132      | 540      | 146          | 68/32     | 9282        | 1726     | 7.8 | 1850     |
| 7/2/2000  | 0.237     | 0.147      | 0.048      | 1126      | 517      | 540          | 69/31     | 9262        | 1711     | 7.7 | 1850     |
| 7/3/2000  | 0.303     | 0.146      | 0.045      | 1107      | 571      | 441          | 66/34     | 9289        | 1712     | 7.6 | 1850     |
| 7/4/2000  | 0.261     | 0.147      | 0.032      | 847       | 823      | 741          | 51/49     | 9205        | 1721     | 7   | 1850     |
| 7/5/2000  | 0.282     | 0.146      | 0.036      | 841       | 809      | 0            | 51/49     | 9432        | 1752     | 6.8 | 1850     |
| 7/6/2000  | 0.216     | 0.146      | 0.036      | 765       | 889      | 0            | 46/54     | 9442        | 1772     | 6.8 | 1850     |
| 7/7/2000  | 0.296     | 0.146      | 0.045      | 604       | 916      | 0            | 40/60     | 8058        | 1593     | 7   | 1850     |
| 7/10/2000 | 0.247     | 0.147      | 0.060      | 1134      | 414      | 1061         | 73/27     | 8696        | 1652     | 8   | 1850     |
| 7/11/2000 | 0.273     | 0.147      | 0.046      | 836       | 787      | 1432         | 52/48     | 8658        | 1571     | 8.1 | 1850     |
| 7/12/2000 | 0.232     | 0.147      | 0.063      | 926       | 768      | 1028         | 55/45     | 8778        | 1621     | 7.9 | 1850     |
| 7/13/2000 | 0.308     | 0.146      | 0.073      | 1084      | 783      | 611          | 58/42     | 9333        | 901      | 7.4 | 1850     |
| 7/14/2000 | 0.299     | 0.147      | 0.100      | 1228      | 476      | 0            | 72/28     | 9409        | 1751     | 7.3 | 1850     |
| 7/15/2000 | 0.281     | 0.147      | 0.058      | 942       | 853      | 0            | 52/48     | 9315        | 1744     | 7.6 | 1850     |
| 7/16/2000 | 0.222     | 0.147      | 0.085      | 1065      | 648      | 0            | 62/38     | 9316        | 1733     | 8.4 | 1850     |
| 7/17/2000 | 0.366     | 0.147      | 0.088      | 1103      | 587      | 0            | 65/35     | 8961        | 1711     | 8.6 | 1850     |
| 7/19/2000 | 0.432     | 0.145      | 0.035      | 1369      | 311      | 1584         | 81/19     | 8978        | 1258     | 7.8 | 1850     |
| 7/20/2000 | 0.273     | 0.147      | 0.044      | 1362      | 291      | 553          | 82/18     | 9128        | 1689     | 8.1 | 1850     |
| 7/21/2000 | 0.282     | 0.147      | 0.064      | 1298      | 512      | 147          | 72/28     | 9124        | 1688     | 8.3 | 1850     |
| 7/22/2000 | 0.225     | 0.146      | 0.062      | 1174      | 651      | 304          | 64/36     | 9416        | 1741     | 8   | 1850     |
| 7/23/2000 | 0.323     | 0.146      | 0.081      | 999       | 981      | 270          | 50/50     | 9295        | 1720     | 7.1 | 1850     |
| 7/24/2000 | 0.358     | 0.148      | 0.057      | 1070      | 824      | 619          | 56/44     | 9150        | 1702     | 7.4 | 1850     |
| 7/25/2000 | 0.322     | 0.147      | 0.043      | 1286      | 639      | 674          | 67/33     | 9073        | 1709     | 7.4 | 1850     |
| 7/26/2000 | 0.312     | 0.147      | 0.031      | 1152      | 719      | 847          | 62/38     | 9104        | 1710     | 7.6 | 1850     |
| 7/27/2000 | 0.397     | 0.147      | 0.033      | 1226      | 703      | 545          | 64/36     | 9046        | 1682     | 7.3 | 1850     |
| 7/28/2000 | 0.298     | 0.147      | 0.029      | 1144      | 698      | 1262         | 62/38     | 8878        | 1638     | 7.5 | 1850     |
| 7/29/2000 | 0.318     | 0.147      | 0.038      | 1202      | 638      | 300          | 65/35     | 9502        | 1738     | 7.2 | 1850     |
| 7/30/2000 | 0.325     | 0.146      | 0.035      | 1181      | 787      | 846          | 60/40     | 9214        | 1725     | 7.1 | 1850     |
| 7/31/2000 | 0.305     | 0.147      | 0.037      | 1248      | 707      | 577          | 64/36     | 9384        | 1747     | 7.2 | 1850     |
| 8/1/2000  | 0.296     | 0.146      | 0.032      | 1212      | 731      | 0            | 62/38     | 9409        | 1769     | 7.5 | 1850     |
| 8/2/2000  | 0.302     | 0.147      | 0.035      | 1182      | 667      | 0            | 64/36     | 9442        | 1739     | 7.6 | 1850     |
| 8/3/2000  | 0.299     | 0.147      | 0.025      | 814       | 481      | 0            | 63/37     | 6497        | 1652     | na  | 1850     |
| 8/5/2000  | 0.295     | 0.147      | 0.032      | 1133      | 559      | 0            | 67/33     | 9158        | 1683     | na  | 1850     |
| 8/6/2000  | 0.255     | 0.147      | 0.042      | 1061      | 648      | 0            | 62/38     | 9142        | 1736     | na  | 1850     |
| 8/7/2000  | 0.376     | 0.146      | 0.028      | 761       | 507      | 2545         | 60/40     | 6526        | 1326     | na  | 1850     |

**Okeelanta Cogeneration Facility - Boiler B**

| Date:      | CO-24 hr. | NOx-24Hr | SO2-24 hr. | Wood/tons | Bag/tons | Fuel Oil/gal | Wood/Bag% | Steam Prod. | MW Prod. | O2  | F-factor |
|------------|-----------|----------|------------|-----------|----------|--------------|-----------|-------------|----------|-----|----------|
| 8/8/2000   | 0.463     | 0.147    | 0.025      | 1012      | 569      | 802          | 64/36     | 8274        | 1685     | na  | 1850     |
| 8/9/2000   | 0.310     | 0.147    | 0.023      | 931       | 654      | 0            | 59/41     | 7854        | 1686     | na  | 1850     |
| 10/10/2000 | 0.390     | 0.145    | 0.059      | 1259      | 483      | 1393         | 72/28     | 7316        | 1721     | 5.2 | 1850     |
| 10/11/2000 | 0.311     | 0.146    | 0.060      | 1288      | 604      | 192          | 68/32     | 7379        | 1749     | 5.5 | 1850     |
| 10/12/2000 | 0.308     | 0.147    | 0.056      | 1208      | 627      | 1608         | 66/34     | 7251        | 1703     | 5.9 | 1850     |
| 10/13/2000 | 0.427     | 0.147    | 0.061      | 1459      | 90       | 0            | 94/6      | 8608        | 1626     | 5   | 1850     |
| 10/14/2000 | 0.295     | 0.146    | 0.053      | 1720      | 0        | 0            | 100/0     | 8297        | 982      | 5.5 | 1850     |
| 10/18/2000 | 0.201     | 0.144    | 0.037      | 814       | 690      | 891          | 54/46     | 6220        | 1754     | 6.2 | 1850     |
| 10/19/2000 | 0.458     | 0.146    | 0.028      | 874       | 917      | 0            | 49/51     | 7315        | 1607     | 5.6 | 1850     |
| 10/20/2000 | 0.234     | 0.147    | 0.019      | 562       | 1289     | 45           | 30/70     | 7709        | 1591     | 5.2 | 1850     |
| 10/21/2000 | 0.354     | 0.147    | 0.034      | 575       | 1308     | 0            | 31/69     | 7803        | 1591     | 4.6 | 1850     |
| 10/22/2000 | 0.215     | 0.147    | 0.041      | 629       | 1286     | 0            | 33/67     | 7970        | 1604     | 5   | 1850     |

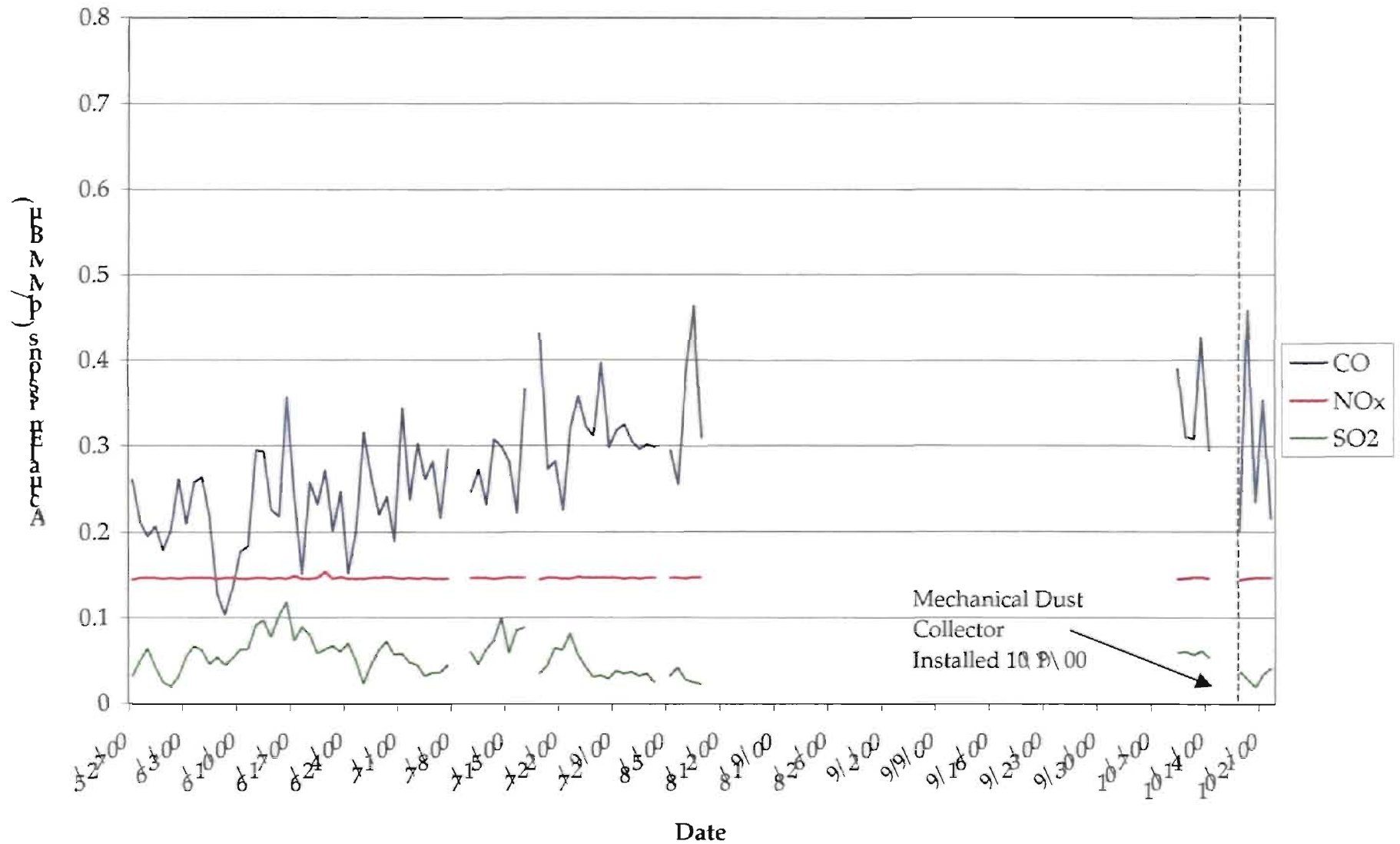
**Note:**

1. CO, NOx and SO2 are expressed in lbs/MMBtu
2. Wood/tons = Total tons of wood fuel fired in 24-hour period
3. Bag/tons = Total tons of bagasse fuel fired in 24-hour period
4. Fuel Oil/gal = Total gallons of fuel oil fired in 24-hour period
5. Wood/Bag% = Percentage of wood versus bagasse fired in 24-hour period
6. Steam Prod = total steam production expressed in k/lbs in 24-hour period
7. MW Prod = total gross megawatts generated in 24-hour period (includes all three boilers)
8. O2 = average percent oxygen for 24-hour period
9. F-factor = scf/MMBtu for biomass fuel programmed into CEMS



Figure 3. Boiler B: Actual Daily CO, NO<sub>x</sub> and SO<sub>2</sub> Emissions

May 27, 2000 - October 22, 2000





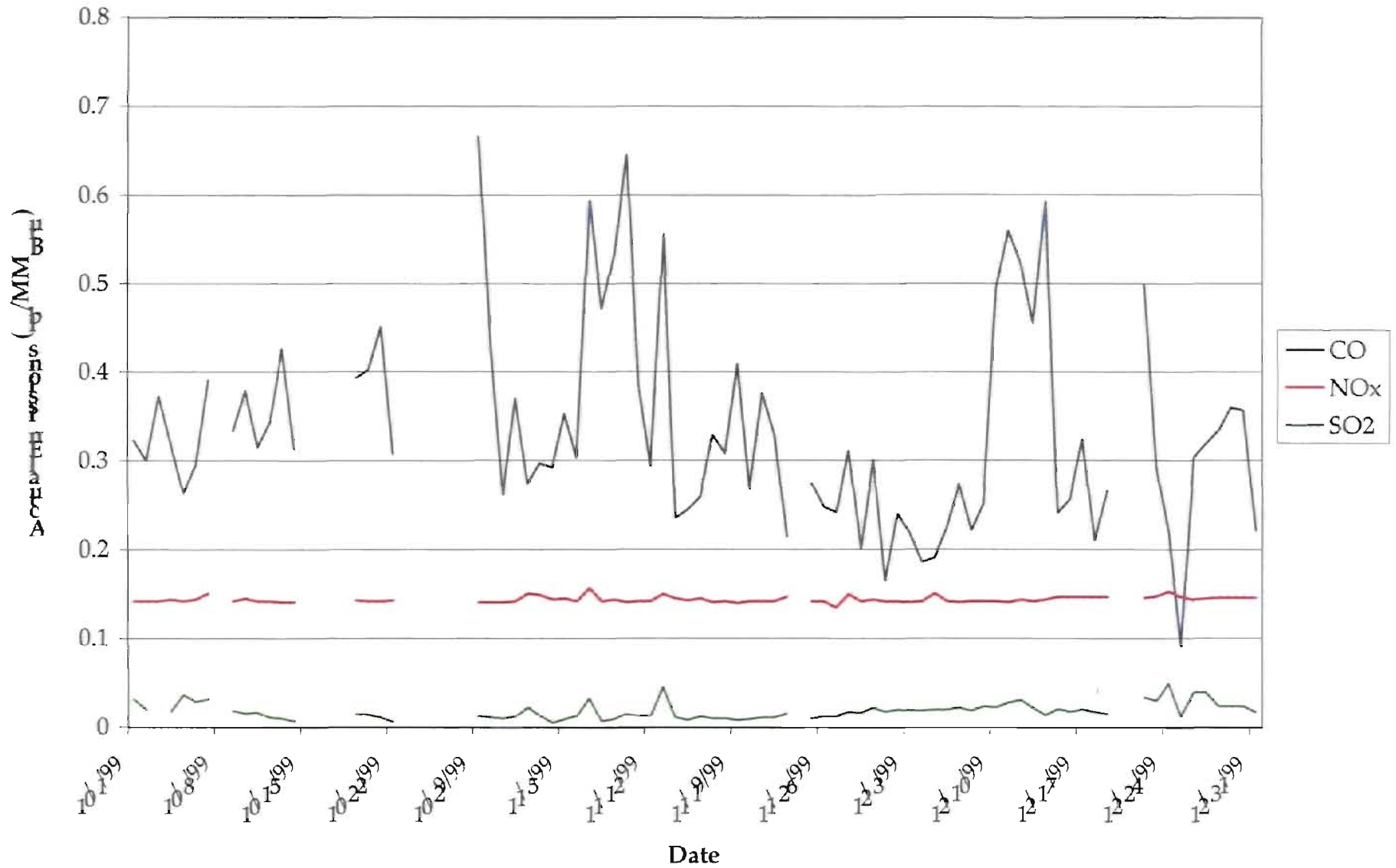
Okeelanta Cogeneration Facility - Boiler C

| Date:      | CO-24 hr. | NOx-24 hr. | SO2-24 hr. | Wood/tons | Bag/tons | Fuel Oil/gal | Wood/Bag% | Steam Prod. | MW Prod. | O2  | F-factor |
|------------|-----------|------------|------------|-----------|----------|--------------|-----------|-------------|----------|-----|----------|
| 11/13/1999 | 0.555     | 0.149      | 0.045      | 1106      | 997      | 0            | 53/47     | 10473       | 597      | 4.5 | 1850     |
| 11/14/1999 | 0.235     | 0.144      | 0.011      | 324       | 1648     | 0            | 16/84     | 9623        | 1342     | 5.5 | 1850     |
| 11/15/1999 | 0.245     | 0.142      | 0.008      | 184       | 1787     | 0            | 9/91      | 9648        | 1437     | 5.5 | 1850     |
| 11/16/1999 | 0.260     | 0.144      | 0.012      | 352       | 1546     | 645          | 18/82     | 9516        | 1470     | 5.9 | 1850     |
| 11/17/1999 | 0.329     | 0.140      | 0.010      | 285       | 1676     | 117          | 14/86     | 9795        | 1589     | 5.6 | 1850     |
| 11/18/1999 | 0.308     | 0.141      | 0.010      | 274       | 1621     | 0            | 14/86     | 9580        | 1505     | 5.6 | 1850     |
| 11/19/1999 | 0.409     | 0.139      | 0.008      | 0         | 1889     | 278          | 0/100     | 9865        | 1502     | 5.5 | 1850     |
| 11/20/1999 | 0.269     | 0.141      | 0.009      | 165       | 1812     | 0            | 8/92      | 9722        | 1444     | 5.7 | 1850     |
| 11/21/1999 | 0.376     | 0.141      | 0.011      | 312       | 1659     | 0            | 16/84     | 9850        | 1549     | 5.6 | 1850     |
| 11/22/1999 | 0.330     | 0.141      | 0.011      | 342       | 1628     | 0            | 17/83     | 9794        | 1610     | 5.6 | 1850     |
| 11/23/1999 | 0.214     | 0.146      | 0.016      | 418       | 1533     | 0            | 21/79     | 9835        | 1574     | 6   | 1850     |
| 11/24/1999 | na        | na         | na         | 286       | 1686     | 427          | 14/86     | 9430        | 1469     | 5.8 | 1850     |
| 11/25/1999 | 0.275     | 0.141      | 0.010      | 181       | 1807     | 0            | 9/91      | 9323        | 1353     | 5.9 | 1850     |
| 11/26/1999 | 0.248     | 0.141      | 0.012      | 274       | 1328     | 1999         | 17/83     | 7462        | 1126     | 7.2 | 1850     |
| 11/27/1999 | 0.242     | 0.134      | 0.012      | 230       | 1830     | 0            | 11/89     | 9245        | 1307     | 5.9 | 1850     |
| 11/28/1999 | 0.311     | 0.149      | 0.017      | 889       | 1075     | 0            | 45/55     | 9638        | 655      | 5.7 | 1850     |
| 11/29/1999 | 0.201     | 0.141      | 0.016      | 356       | 1418     | 1466         | 20/80     | 9344        | 1403     | 6.3 | 1850     |
| 11/30/1999 | 0.301     | 0.143      | 0.022      | 315       | 1606     | 0            | 16/84     | 9824        | 846      | 5.7 | 1850     |
| 12/1/1999  | 0.165     | 0.141      | 0.018      | 274       | 1795     | 0            | 13/87     | 9703        | 1449     | 6   | 1850     |
| 12/2/1999  | 0.240     | 0.141      | 0.020      | 309       | 1755     | 0            | 15/85     | 9798        | 1542     | 5.9 | 1850     |
| 12/3/1999  | 0.218     | 0.140      | 0.019      | 326       | 1748     | 0            | 16/84     | 9515        | 1648     | 6   | 1850     |
| 12/4/1999  | 0.186     | 0.141      | 0.019      | 164       | 1856     | 0            | 8/92      | 9380        | 1552     | 5.8 | 1850     |
| 12/5/1999  | 0.191     | 0.150      | 0.020      | 190       | 1784     | 2233         | 10/90     | 9399        | 1256     | 6.2 | 1850     |
| 12/6/1999  | 0.224     | 0.141      | 0.020      | 270       | 1741     | 336          | 13/87     | 9479        | 1592     | 5.6 | 1850     |
| 12/7/1999  | 0.274     | 0.140      | 0.022      | 252       | 1825     | 0            | 12/88     | 9439        | 1525     | 5.6 | 1850     |
| 12/8/1999  | 0.221     | 0.141      | 0.019      | 103       | 1954     | 0            | 5/95      | 9412        | 1543     | 5.8 | 1850     |
| 12/9/1999  | 0.252     | 0.141      | 0.024      | 0         | 2030     | 0            | 0/100     | 9420        | 1571     | 5.9 | 1850     |
| 12/10/1999 | 0.495     | 0.141      | 0.023      | 222       | 1712     | 959          | 11/89     | 8972        | 1342     | 6.2 | 1850     |
| 12/11/1999 | 0.559     | 0.140      | 0.028      | 477       | 1456     | 1440         | 25/75     | 8578        | 605      | 6.3 | 1850     |
| 12/12/1999 | 0.522     | 0.143      | 0.031      | 981       | 1088     | 1911         | 47/53     | 9633        | 341      | 5.5 | 1850     |
| 12/13/1999 | 0.455     | 0.141      | 0.022      | 450       | 1542     | 706          | 23/77     | 9304        | 868      | 5.9 | 1850     |
| 12/14/1999 | 0.592     | 0.143      | 0.014      | 73        | 2016     | 226          | 3/97      | 9217        | 1500     | 5.7 | 1850     |
| 12/15/1999 | 0.241     | 0.146      | 0.021      | 320       | 1793     | 0            | 15/85     | 9405        | 1521     | 6   | 1850     |
| 12/16/1999 | 0.257     | 0.146      | 0.018      | 0         | 2072     | 313          | 0/100     | 9367        | 1540     | 6   | 1850     |
| 12/17/1999 | 0.324     | 0.146      | 0.020      | 0         | 2093     | 338          | 0/100     | 9457        | 1528     | 5.9 | 1850     |

**Okeelanta Cogeneration Facility - Boiler C**

| Date:   | CO-24 hr. | NOx-24Hr | SO2-24 hr. | Wood/tons | Bag/tons | Fuel Oil/gal | Wood/Bag% | Steam Prod. | MW Prod. | O2  | F-factor |
|---|-----------|----------|------------|-----------|----------|--------------|-----------|-------------|----------|-----|----------|
| 12/18/1999  | 0.210     | 0.146    | 0.017      | 0         | 2038     | 0            | 0/100     | 9341        | 1558     | 6.2 | 1850     |
| 12/19/1999  | 0.267     | 0.146    | 0.015      | 0         | 2095     | 0            | 0/100     | 9470        | 1519     | 6.1 | 1850     |
| 12/22/1999  | 0.499     | 0.145    | 0.034      | 0         | 2040     | 249          | 0/100     | 9337        | 1401     | 6   | 1850     |
| 12/23/1999  | 0.293     | 0.147    | 0.030      | 0         | 2053     | 0            | 0/100     | 9053        | 1303     | 7.5 | 1850     |
| 12/24/1999  | 0.217     | 0.152    | 0.049      | 957       | 1046     | 200          | 48/52     | 8814        | 1123     | 9.3 | 1850     |
| 12/25/1999  | 0.091     | 0.146    | 0.012      | 0         | 1919     | 0            | 0/100     | 7581        | 1539     | 9.9 | 1850     |
| 12/26/1999  | 0.303     | 0.143    | 0.039      | 369       | 1726     | 0            | 18/82     | 7769        | 789      | 6.6 | 1850     |
| 12/27/1999  | 0.319     | 0.144    | 0.039      | 513       | 1315     | 0            | 28/72     | 8774        | 867      | 6.6 | 1850     |
| 12/28/1999  | 0.334     | 0.145    | 0.024      | 95        | 2022     | 0            | 4/96      | 9174        | 1422     | 6.2 | 1850     |
| 12/29/1999  | 0.360     | 0.145    | 0.024      | 596       | 1229     | 589          | 50/50     | 9102        | 1460     | 6.8 | 1850     |
| 12/30/1999  | 0.357     | 0.145    | 0.024      | 951       | 1161     | 582          | 62/38     | 9220        | 1168     | 6.6 | 1850     |
| 12/31/1999  | 0.221     | 0.145    | 0.017      | 75        | 1943     | 0            | 4/96      | 9305        | 1582     | 6.3 | 1850     |
| <b>Note:</b>  |           |          |            |           |          |              |           |             |          |     |          |
| 1. CO, NOx and SO2 are expressed in lbs/MMBtu   |           |          |            |           |          |              |           |             |          |     |          |
| 2. Wood/tons = Total tons of wood fuel fired in 24-hour period                              |           |          |            |           |          |              |           |             |          |     |          |
| 3. Bag/tons = Total tons of bagasse fuel fired in 24-hour period                            |           |          |            |           |          |              |           |             |          |     |          |
| 4. Fuel Oil/gal = Total gallons of fuel oil fired in 24-hour period                         |           |          |            |           |          |              |           |             |          |     |          |
| 5. Wood/Bag% = Percentage of wood versus bagasse fired in 24-hour period                    |           |          |            |           |          |              |           |             |          |     |          |
| 6. Steam Prod = total steam production expressed in k/lbs in 24-hour period                 |           |          |            |           |          |              |           |             |          |     |          |
| 7. MW Prod = total gross megawatts generated in 24-hour period (includes all three boilers) |           |          |            |           |          |              |           |             |          |     |          |
| 8. O2 = average percent oxygen for 24-hour period   |           |          |            |           |          |              |           |             |          |     |          |
| 9. F-factor = scf/MMBtu for biomass fuel programmed into CEMS                               |           |          |            |           |          |              |           |             |          |     |          |

Figure 4. Boiler C: Actual Daily CO, NO<sub>x</sub> and SO<sub>2</sub> Emissions  
October 1, 1999 - December 31, 1999



| Okeelanta Cogeneration Facility - Boiler C                    |           |            |            |           |          |              |           |            |          |     | Table 5 - Page 1 of 3 |
|---|-----------|------------|------------|-----------|----------|--------------|-----------|------------|----------|-----|-----------------------|
| Sulfur Dioxide (SO2) excess emissions 6/14/00 through 7/12/00 |           |            |            |           |          |              |           |            |          |     |                       |
| Date:   | CO-24 hr. | NOx-24 hr. | SO2-24 hr. | Wood/tons | Bag/tons | Fuel Oil/gal | Wood/Bag% | Steam Prod | MW Prod. | O2  | F-factor              |
| 3/22/2000   | 0.232     | 0.146      | 0.015      | 97        | 1175     | 122          | 8/92      | 8128       | 1499     | 8.4 | 1850                  |
| 3/23/2000   | 0.171     | 0.146      | 0.019      | 0         | 1329     | 0            | 0/100     | 8370       | 1536     | 7.8 | 1850                  |
| 3/24/2000   | 0.252     | 0.146      | 0.018      | 0         | 1337     | 0            | 0/100     | 8655       | 1570     | 7.9 | 1850                  |
| 3/25/2000   | 0.265     | 0.146      | 0.024      | 0         | 1413     | 402          | 0/100     | 8629       | 1565     | 7.9 | 1850                  |
| 3/26/2000   | 0.238     | 0.146      | 0.047      | 603       | 700      | 48           | 46/54     | 8813       | 1593     | 8.3 | 1850                  |
| 3/27/2000   | 0.222     | 0.147      | 0.059      | 876       | 231      | 219          | 79/21     | 8803       | 1603     | 8.8 | 1850                  |
| 3/28/2000   | 0.182     | 0.145      | 0.047      | 613       | 630      | 212          | 49/51     | 8646       | 1596     | 8.6 | 1850                  |
| 3/29/2000   | 0.197     | 0.146      | 0.044      | 728       | 504      | 170          | 59/41     | 8577       | 1579     | 8.8 | 1850                  |
| 3/30/2000   | 0.236     | 0.146      | 0.049      | 747       | 431      | 0            | 63/37     | 8661       | 1603     | 8.7 | 1850                  |
| 3/31/2000   | 0.194     | 0.146      | 0.043      | 665       | 531      | 0            | 56/44     | 9023       | 1691     | 8.6 | 1850                  |
| 4/1/2000  | 0.159     | 0.146      | 0.048      | 809       | 316      | 0            | 72/28     | 9151       | 1707     | 8.8 | 1850                  |
| 4/2/2000  | 0.209     | 0.146      | 0.053      | 866       | 334      | 0            | 72/28     | 9033       | 1702     | 8.8 | 1850                  |
| 4/3/2000  | 0.322     | 0.148      | 0.056      | 722       | 436      | 0            | 62/38     | 9067       | 1710     | 8.5 | 1850                  |
| 5/27/2000   | 0.140     | 0.145      | 0.052      | 585       | 922      | 0            | 39/61     | 7510       | 1730     | 6.7 | 1850                  |
| 5/28/2000   | 0.110     | 0.144      | 0.076      | 787       | 697      | 0            | 53/47     | 8247       | 1743     | 6.7 | 1850                  |
| 5/29/2000   | 0.127     | 0.144      | 0.087      | 926       | 538      | 0            | 63/37     | 8277       | 1767     | 6.8 | 1850                  |
| 5/30/2000   | 0.145     | 0.145      | 0.057      | 1002      | 512      | 0            | 66/34     | 8848       | 1754     | 6.5 | 1850                  |
| 5/31/2000   | 0.200     | 0.146      | 0.048      | 874       | 615      | 0            | 59/41     | 9228       | 1733     | 6   | 1850                  |
| 6/1/2000  | 0.165     | 0.146      | 0.051      | 961       | 340      | 371          | 74/26     | 9286       | 1707     | 6.1 | 1850                  |
| 6/2/2000  | 0.143     | 0.156      | 0.046      | 1030      | 236      | 0            | 81/19     | 9731       | 1707     | 5.9 | 1850                  |
| 6/3/2000  | 0.150     | 0.146      | 0.060      | 982       | 426      | 0            | 70/30     | 9942       | 1717     | 5.5 | 1850                  |
| 6/4/2000  | 0.139     | 0.146      | 0.067      | 1026      | 334      | 0            | 75/25     | 10172      | 1730     | 5.3 | 1850                  |
| 6/5/2000  | 0.185     | 0.147      | 0.067      | 1027      | 434      | 0            | 70/30     | 10017      | 1718     | 5.2 | 1850                  |
| 6/6/2000  | 0.150     | 0.146      | 0.061      | 1130      | 192      | 464          | 85/15     | 9586       | 1693     | 5.2 | 1850                  |
| 6/7/2000  | 0.143     | 0.146      | 0.066      | 1185      | 36       | 0            | 97/3      | 10195      | 1752     | 5.8 | 1850                  |
| 6/8/2000  | 0.167     | 0.146      | 0.064      | 1102      | 281      | 0            | 80/20     | 9877       | 1724     | 5.4 | 1850                  |
| 6/9/2000  | 0.151     | 0.146      | 0.082      | 1411      | 0        | 0            | 100/0     | 9917       | 1741     | 5.1 | 1850                  |
| 6/10/2000   | 0.209     | 0.146      | 0.106      | 1440      | 0        | 0            | 100/0     | 9767       | 1722     | 5.4 | 1850                  |
| 6/11/2000   | 0.165     | 0.146      | 0.098      | 1444      | 0        | 1110         | 100/0     | 9390       | 1687     | 5.3 | 1850                  |
| 6/13/2000   | 0.341     | 0.148      | 0.111      | 1388      | 0        | 290          | 100/0     | 9466       | 1691     | 6.1 | 1850                  |
| 6/14/2000   | 0.124     | 0.146      | 0.093      | 1302      | 0        | 1753         | 100/0     | 8336       | 1470     | 6.1 | 1850                  |
| 6/15/2000   | 0.101     | 0.146      | 0.123      | 1416      | 0        | 59           | 100/0     | 8877       | 1622     | 6.8 | 1850                  |
| 6/18/2000   | 0.080     | 0.147      | 0.074      | 1068      | 0        | 0            | 100/0     | 8850       | 1631     | 6.2 | 1850                  |

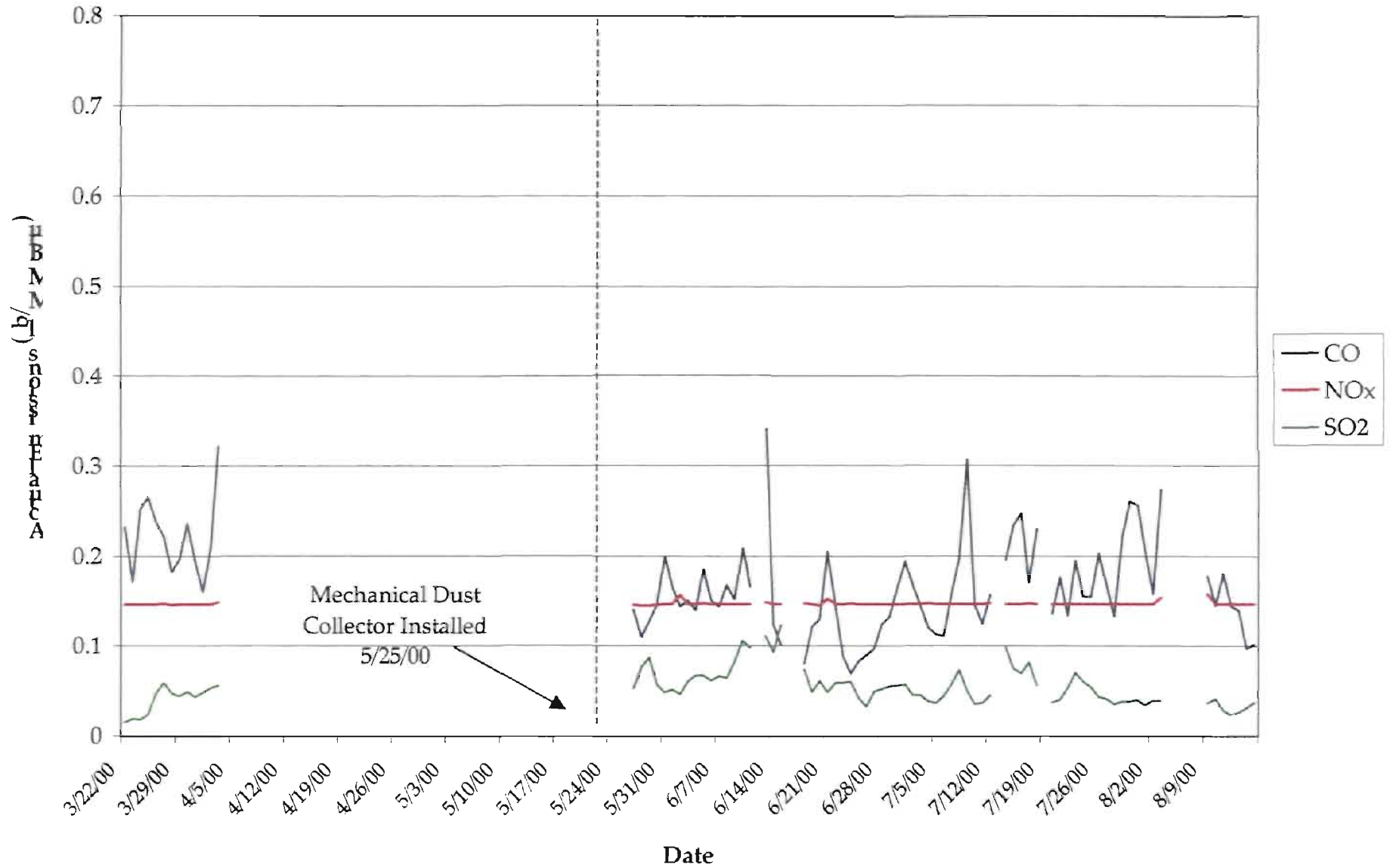
Okeelanta Cogeneration Facility - Boiler C

| Date:     | CO-24 hr. | NOx-24 hr. | SO2-24 hr. | Wood/tons | Bag/tons | Fuel Oil/gal | Wood/Bag% | Steam Prod. | MW Prod. | O2  | F-factor |
|-----------|-----------|------------|------------|-----------|----------|--------------|-----------|-------------|----------|-----|----------|
| 6/19/2000 | 0.121     | 0.146      | 0.048      | 913       | 371      | 0            | 71/29     | 9271        | 1638     | 6.2 | 1850     |
| 6/20/2000 | 0.130     | 0.144      | 0.061      | 1186      | 293      | 0            | 80/20     | 9346        | 1654     | 5.7 | 1850     |
| 6/21/2000 | 0.205     | 0.152      | 0.048      | 985       | 809      | 1641         | 55/45     | 8967        | 1519     | 6   | 1850     |
| 6/22/2000 | 0.144     | 0.146      | 0.059      | 966       | 603      | 0            | 62/38     | 9467        | 1701     | 5.8 | 1850     |
| 6/23/2000 | 0.088     | 0.146      | 0.059      | 767       | 432      | 0            | 64/36     | 9276        | 1678     | 5   | 1850     |
| 6/24/2000 | 0.069     | 0.147      | 0.060      | 1000      | 493      | 0            | 67/33     | 9198        | 1716     | 5.1 | 1850     |
| 6/25/2000 | 0.083     | 0.146      | 0.042      | 1112      | 432      | 0            | 72/28     | 9092        | 1686     | 5.1 | 1850     |
| 6/26/2000 | 0.090     | 0.146      | 0.032      | 968       | 405      | 36           | 71/29     | 8810        | 1699     | 5.2 | 1850     |
| 6/27/2000 | 0.097     | 0.146      | 0.049      | 1042      | 477      | 0            | 69/31     | 9170        | 1710     | 6   | 1850     |
| 6/28/2000 | 0.124     | 0.146      | 0.052      | 1064      | 554      | 357          | 66/34     | 9464        | 1666     | 5.8 | 1850     |
| 6/29/2000 | 0.132     | 0.146      | 0.055      | 1109      | 552      | 0            | 67/33     | 9340        | 1723     | 5.7 | 1850     |
| 6/30/2000 | 0.164     | 0.146      | 0.056      | 1177      | 491      | 0            | 71/29     | 9448        | 1750     | 5.8 | 1850     |
| 7/1/2000  | 0.194     | 0.146      | 0.057      | 1132      | 540      | 0            | 68/32     | 9469        | 1726     | 4.6 | 1850     |
| 7/2/2000  | 0.167     | 0.146      | 0.045      | 1126      | 517      | 0            | 69/31     | 9331        | 1711     | 4.7 | 1850     |
| 7/3/2000  | 0.144     | 0.146      | 0.045      | 1107      | 571      | 0            | 66/34     | 9332        | 1712     | 4.8 | 1850     |
| 7/4/2000  | 0.120     | 0.147      | 0.038      | 847       | 823      | 0            | 51/49     | 9373        | 1721     | 5.2 | 1850     |
| 7/5/2000  | 0.113     | 0.146      | 0.036      | 841       | 809      | 0            | 51/49     | 9445        | 1752     | 5.1 | 1850     |
| 7/6/2000  | 0.111     | 0.146      | 0.044      | 765       | 889      | 0            | 46/54     | 9449        | 1772     | 4.9 | 1850     |
| 7/7/2000  | 0.157     | 0.146      | 0.057      | 659       | 999      | 0            | 40/60     | 9508        | 1593     | 4.5 | 1850     |
| 7/8/2000  | 0.199     | 0.146      | 0.073      | 840       | 869      | 579          | 49/51     | 9074        | 1385     | 4.7 | 1850     |
| 7/9/2000  | 0.307     | 0.146      | 0.050      | 1294      | 816      | 0            | 61/39     | 9587        | 683      | 4.6 | 1850     |
| 7/10/2000 | 0.145     | 0.146      | 0.035      | 1183      | 432      | 0            | 73/27     | 9327        | 1652     | 5.2 | 1850     |
| 7/11/2000 | 0.124     | 0.146      | 0.036      | 836       | 787      | 0            | 52/48     | 8642        | 1571     | 6   | 1850     |
| 7/12/2000 | 0.156     | 0.147      | 0.045      | 926       | 768      | 243          | 55/45     | 9009        | 1621     | 6.2 | 1850     |
| 7/14/2000 | 0.195     | 0.146      | 0.099      | 1228      | 476      | 0            | 72/28     | 9473        | 1751     | 4.8 | 1850     |
| 7/15/2000 | 0.234     | 0.146      | 0.075      | 942       | 853      | 0            | 52/48     | 9380        | 1744     | 4.3 | 1850     |
| 7/16/2000 | 0.247     | 0.146      | 0.069      | 1065      | 648      | 0            | 62/38     | 9468        | 1733     | 4.3 | 1850     |
| 7/17/2000 | 0.170     | 0.147      | 0.082      | 1103      | 587      | 0            | 65/35     | 9659        | 1711     | 4.5 | 1850     |
| 7/18/2000 | 0.230     | 0.146      | 0.056      | 993       | 615      | 4973         | 62/38     | 8149        | 1114     | 6   | 1850     |
| 7/20/2000 | 0.135     | 0.146      | 0.037      | 1362      | 291      | 0            | 82/18     | 9305        | 1689     | 4.8 | 1850     |
| 7/21/2000 | 0.176     | 0.146      | 0.040      | 1298      | 512      | 0            | 72/28     | 9410        | 1688     | 4.7 | 1850     |
| 7/22/2000 | 0.133     | 0.146      | 0.053      | 1174      | 651      | 0            | 64/36     | 9507        | 1741     | 4.4 | 1850     |
| 7/23/2000 | 0.195     | 0.146      | 0.070      | 999       | 981      | 0            | 50/50     | 9383        | 1720     | 4.3 | 1850     |
| 7/24/2000 | 0.155     | 0.146      | 0.060      | 1070      | 824      | 0            | 56/44     | 9215        | 1702     | 4.9 | 1850     |
| 7/25/2000 | 0.154     | 0.146      | 0.054      | 1286      | 639      | 0            | 67/33     | 9391        | 1709     | 4.6 | 1850     |





Figure 5. Boiler C: Actual Daily CO, NO<sub>x</sub> and SO<sub>2</sub> Emissions  
March 22, 2000 - August 15, 2000



**APPENDIX B**

**HIGHEST CO AND SO<sub>2</sub> EMISSIONS FROM CEM DATA**

| <b>Okeelanta Cogeneration Facility</b>                       |       |       |                 |       |       |
|--|-------|-------|-----------------|-------|-------|
| Summary of CO Emissions - Maximum 8-hour Average (lbs/MMBtu) |       |       |                 |       |       |
| <b>Boiler B</b>  |       |       | <b>Boiler A</b> |       |       |
| Date:  | Time: | CO    | Date:           | Time: | CO    |
| 12/27/1999   | 04:00 | 4.880 | 10/16/1999      | 04:00 | 1.027 |
| 12/27/1999   | 05:00 | 5.800 | 10/16/1999      | 05:00 | 1.388 |
| 12/27/1999   | 06:00 | 5.886 | 10/16/1999      | 06:00 | 1.835 |
| 12/27/1999   | 07:00 | 5.934 | 10/16/1999      | 07:00 | 1.294 |
| 12/27/1999   | 08:00 | 6.012 | 10/16/1999      | 08:00 | 0.520 |
| 12/27/1999   | 09:00 | 4.090 | 10/16/1999      | 09:00 | 0.259 |
| 12/27/1999   | 10:00 | 1.104 | 10/16/1999      | 10:00 | 1.120 |
| 12/27/1999   | 11:00 | 0.538 | 10/16/1999      | 11:00 | 0.791 |
| Average  |       | 4.280 | Average         |       | 1.029 |
| <b>Boiler A</b>  |       |       | <b>Boiler C</b> |       |       |
| Date:  | Time: | CO    | Date:           | Time: | CO    |
| 8/25/1999  | 09:00 | 3.265 | 11/10/1999      | 08:00 | 0.734 |
| 8/25/1999  | 10:00 | 3.064 | 11/10/1999      | 09:00 | 0.817 |
| 8/25/1999  | 11:00 | 2.938 | 11/10/1999      | 10:00 | 0.698 |
| 8/25/1999  | 12:00 | 2.618 | 11/10/1999      | 11:00 | 0.596 |
| 8/25/1999  | 13:00 | 2.758 | 11/10/1999      | 12:00 | 0.814 |
| 8/25/1999  | 14:00 | 2.749 | 11/10/1999      | 13:00 | 0.781 |
| 8/25/1999  | 15:00 | 2.480 | 11/10/1999      | 14:00 | 0.798 |
| 8/25/1999  | 16:00 | 1.657 | 11/10/1999      | 15:00 | 0.837 |
| Average  |       | 2.691 | Average         |       | 0.759 |
| <b>Boiler C</b>  |       |       | <b>Boiler C</b> |       |       |
| Date:  | Time: | CO    | Date:           | Time: | CO    |
| 9/20/1999  | 05:00 | 6.497 | 10/29/1999      | 12:00 | 0.859 |
| 9/20/1999  | 06:00 | 6.327 | 10/29/1999      | 13:00 | 0.888 |
| 9/20/1999  | 07:00 | 0.865 | 10/29/1999      | 14:00 | 0.884 |
| 9/20/1999  | 08:00 | 0.207 | 10/29/1999      | 15:00 | 0.554 |
| 9/20/1999  | 09:00 | 0.154 | 10/29/1999      | 16:00 | 0.494 |
| 9/20/1999  | 10:00 | 0.329 | 10/29/1999      | 17:00 | 0.689 |
| 9/20/1999  | 11:00 | 0.385 | 10/29/1999      | 18:00 | 0.822 |
| 9/20/1999  | 12:00 | 0.307 | 10/29/1999      | 19:00 | 0.849 |
| Average  |       | 1.883 | Average         |       | 0.754 |

| <b>Okeelanta Cogeneration Facility</b>                        |       |       |  |  |
|---|-------|-------|--|--|
| Summary of SO2 Emissions - Maximum Hourly Average (lbs/MMBtu) |       |       |  |  |
| <b>Boiler B</b>   |       |       |  |  |
| Date:   | Time: | SO2   |  |  |
| 6/13/2000   | 16:00 | 0.152 |  |  |
| 6/13/2000   | 17:00 | 0.138 |  |  |
| 6/13/2000   | 18:00 | 0.142 |  |  |
| 6/15/2000   | 14:00 | 0.135 |  |  |
| 6/15/2000   | 15:00 | 0.121 |  |  |
| 6/15/2000   | 16:00 | 0.120 |  |  |
| 6/16/2000   | 00:00 | 0.144 |  |  |
| 6/16/2000   | 01:00 | 0.141 |  |  |
| 6/16/2000   | 02:00 | 0.166 |  |  |
| 6/16/2000   | 14:00 | 0.133 |  |  |
| 6/16/2000   | 15:00 | 0.131 |  |  |
| 6/16/2000   | 16:00 | 0.129 |  |  |
| 7/14/2000   | 10:00 | 0.136 |  |  |
| 7/14/2000   | 11:00 | 0.132 |  |  |
| 7/14/2000   | 12:00 | 0.128 |  |  |
| 7/14/2000   | 13:00 | 0.129 |  |  |
| <b>Boiler C</b>   |       |       |  |  |
| Date:   | Time: | SO2   |  |  |
| 6/9/2000  | 18:00 | 0.138 |  |  |
| 6/9/2000  | 19:00 | 0.122 |  |  |
| 6/9/2000  | 20:00 | 0.150 |  |  |
| 6/9/2000  | 21:00 | 0.135 |  |  |
| 6/10/2000   | 10:00 | 0.131 |  |  |
| 6/10/2000   | 11:00 | 0.129 |  |  |
| 6/10/2000   | 12:00 | 0.126 |  |  |
| 6/13/2000   | 13:00 | 0.139 |  |  |
| 6/13/2000   | 14:00 | 0.151 |  |  |
| 6/13/2000   | 15:00 | 0.143 |  |  |
| 6/13/2000   | 16:00 | 0.146 |  |  |
| 6/15/2000   | 13:00 | 0.125 |  |  |
| 6/15/2000   | 14:00 | 0.146 |  |  |
| 6/15/2000   | 15:00 | 0.128 |  |  |
| 6/15/2000   | 18:00 | 0.137 |  |  |
| 6/15/2000   | 19:00 | 0.140 |  |  |
| 6/15/2000   | 20:00 | 0.133 |  |  |

**APPENDIX C**  
**AIR QUALITY IMPACT ANALYSIS**  
**FOR**  
**CARBON MONOXIDE**

## **1.0 AIR QUALITY IMPACT ANALYSIS FOR CARBON MONOXIDE**

Golder Associates Inc. (Golder), on behalf of Okeelanta Power L.P. (OkPLP), has performed additional air quality impact analyses for carbon monoxide (CO) emissions to further address Comment No. 4 made in the Department of Environmental Protection's (DEP) letter dated January 25, 2001. These analyses were based on modeling OkPLP's future maximum CO emissions together with CO emissions of other sources within the modeling and screening areas. The modeling area extended out to 6 km, at which distance the increase in CO impacts are predicted to be below the 1-hour and 8-hour significant impact levels of 2,000 and 500  $\mu\text{g}/\text{m}^3$ , respectively. The screening area extended out to 56 km, i.e. 50 km beyond the modeling area. As shown in these analyses, the OkPLP's CO impacts, together with those from background CO emission sources, are predicted to be well below the national and state ambient air quality standards (AAQS). The following summary provides descriptions of the methods and assumptions used to estimate total air quality CO concentrations for OkPLP and other sources.

### **1.1 AIR MODELING METHODS AND APPROACH**

The CO concentrations were predicted with the Industrial Source Complex Short-term (ISCST3, Version 00101) dispersion model (EPA, 2001) and five years of meteorological data from the National Weather Service (NWS) office at Palm Beach International Airport. The 5-year period of meteorological data was from 1987 through 1991. Generally, when using 5-years of meteorological data for the analysis, the highest annual and highest, second-highest (HSH) short-term concentrations are to be compared to the applicable AAQS and allowable PSD increments. The HSH is calculated for a receptor field by:

1. Eliminating the highest concentration predicted at each receptor,
2. Identifying the second-highest concentration at each receptor, and
3. Selecting the highest concentration among these second-highest concentrations.

This approach is consistent with most air quality standards and all allowable PSD increments, which permit a short-term average concentration to be exceeded once per year at each receptor.

For the AAQS analysis, the future emissions of the plant site are modeled with background emission facilities. A non-modeled background concentration is added to the maximum predicted air quality to determine a total air quality concentration. The maximum annual and HSH short-term total concentrations are compared to the AAQS.

## 1.2 EMISSION INVENTORY

The future maximum CO emissions and operating data for OkPLP are presented in revised Tables 2-1 through 2-5. For the significant impact analysis, the CO emissions and stack parameters for the OkPLP boilers were developed and are presented in Tables C-1 and C-2. The CO emission data were based on current permit limits and Continuous Emissions Monitoring System (CEMS) data. Stack and operating data were obtained from the Title V permit application (1999).

The emission inventories for background facilities were developed from databases obtained from the DEP, previous air modeling studies performed by Golder Associates, and air permit data. All background sources that were in these inventories were located outside the modeling area (defined as the significant impact area).

For sources located in the screening area (defined as 50 km beyond the modeling area), a technique was used for eliminating sources in the modeling analyses if the source's emissions do not meet an emission criterion. This technique, which is approved for use by the DEP and the USEPA, is the *Screening Threshold* method, developed by the North Carolina Department of Natural Resources and Community Development. The method is designed to objectively eliminate from the emission inventory those sources that are unlikely to have a significant interaction with the source undergoing evaluation. In general, sources that should be considered in the modeling analyses are those with emissions greater than a screening threshold value (in TPY) that is calculated by the following criteria:

$$Q = 20 \times D$$

- where Q = the screening threshold value (TPY), and
- D = The distance (km) from the proposed facility to the source undergoing evaluation for short-term analysis, or
- The distance (km) from the edge of the proposed facility's significant impact area to the source undergoing evaluation for long-term (annual) analysis.

For this analysis, the long-term criterion was used since fewer facilities would be eliminated than with the short-term criterion. Also, the total emissions from a facility were used rather than emissions from individual sources for comparison to the screening threshold value. These methods result in a more conservative approach to produce higher-than-expected concentrations. Those facilities with

maximum allowable emissions that are below the calculated *screening threshold* were eliminated from further consideration in the AAQS modeling analyses. Additional large sources beyond the screening area were also included in the modeling.

A summary of the facilities considered for inclusion in the modeling analyses is presented in Table C-3. This summary identifies those facilities located within the modeling area and screening area. The facilities that were not included in the modeling analyses because their CO emissions were less than the *screening threshold* criteria are also identified. A summary of the stack, operating, and emission data for sources used in the modeling analyses is presented in Table C-4.

### **1.3 RECEPTOR LOCATIONS**

The maximum concentrations in the vicinity of OkPLP and the distance of the significant impacts were predicted in a receptor grid that contained 472 discrete receptors. The discrete receptors included 393 receptors, separated by 100-meter spacing, located along OkPLP's property line and 79 additional offsite receptors in a radial at 10-degree intervals at distances of 4.0, 5.0, and 6.0 km from the cogeneration boiler B's stack. A summary of the property boundary receptors is presented in Table C-5. A plot of the property boundary, receptors and building locations is presented in Figure C-1.

### **1.4 BUILDING DOWNWASH EFFECTS FOR OKPLP**

All significant building structures within OkPLP's property boundary were determined by a site plot plan. The plot plan was presented in the original application (attachment OC-FI-C2). A total of 4 building structures were evaluated. All building structures were processed in the EPA Building Input Profile (BPIP, Version 95086) program to determine direction-specific building heights and projected widths for each 10-degree azimuth direction for each source that was included in the modeling analysis. A listing of dimensions for each structure is presented in Table C-6. A plot of the building dimensions and the cogeneration boiler B stack location (the modeling origin) is presented in Figure C-2.

### **1.5 BACKGROUND CONCENTRATIONS**

To estimate the total CO air quality concentrations, 1-hour and 8-hour background concentrations were added to the modeling results. The background concentration is considered to be the air quality concentration contributed by sources not included in the modeling evaluation. Because other background sources were modeled, a background value was used that was considered to be realistic



but still conservative. The monitors in West Palm Beach are considered to provide a very conservative estimate of background CO concentrations for OkPLP, due to the significant mobile traffic impacting the West Palm Beach monitors. In this analysis, background concentrations were assumed to be represented by the lowest of the second highest concentrations measured from the nearest monitors since OkPLP is located in a more rural area of Palm Beach county.

A summary of the CO ambient monitoring data in the vicinity of OkPLP for 1999 and 2000 is presented in Table C-7. The CO monitors nearest to the site are the DEP monitor, number 12-057-1006, located at 50 South Military Trail in West Palm Beach, and monitor number 12-057-1004, 3730 Belvedere Road in Palm Beach. For 1999 and 2000, the lowest of the second highest of the 1-hour and 8-hour measured concentrations at these monitors were 3.8 parts per million (ppm) (4,370 microgram per cubic meter ( $\mu\text{g}/\text{m}^3$ )) and 2.6 ppm (approximately 2,990  $\mu\text{g}/\text{m}^3$ ), respectively. These background levels were added to the refined model-predicted concentrations to estimate total CO air quality levels for comparison to the AAQS.

## **1.6 SUMMARY OF RESULTS**

The maximum CO impacts due to the increase in emissions compared to the significant impact levels in Table C-8. A summary of the maximum 1-hour and 8-hour average CO concentrations predicted in the screening analysis is presented in Table C-9. Based on the screening results, modeling refinements were performed for both the 1-hour and 8-hour averaging times. The results of the refined modeling analyses from this analysis are summarized in Table C-10. For this analysis, the maximum 1-hour and 8-hour average CO concentrations due to all sources, including background concentrations, are 7,436 and 3,746  $\mu\text{g}/\text{m}^3$ , respectively. These concentrations are 19 and 37 percent of the AAQS of 40,000 and 10,000  $\mu\text{g}/\text{m}^3$ , respectively.

Based on these air modeling results, the maximum CO concentrations from OkPLP and other CO emission sources will comply with the AAQS.

The air modeling output files which contain the results of the CO concentrations predicted for the Okeelanta Power, L.P. facility and background sources have been forwarded to the DEP using Golder's ftp site (<ftp://external.golder.com/OkPLP/Modeling>).

Table 2-1. Revised Maximum Short-Term Emissions for OkPLP Cogeneration Facility (per boiler) (Revised 5/25/01)

| Regulated Pollutant                        | Biomass                    |                            |                           | No. 2 Fuel Oil             |                            |                           | Natural Gas                |                            |                           | Maximum Emissions for any fuel (lb/hr) |
|--|----------------------------|----------------------------|---------------------------|----------------------------|----------------------------|---------------------------|----------------------------|----------------------------|---------------------------|--|
|  | Emission Factor (lb/MMBtu) | Activity Factor (MMBtu/hr) | Maximum Emissions (lb/hr) | Emission Factor (lb/MMBtu) | Activity Factor (MMBtu/hr) | Maximum Emissions (lb/hr) | Emission Factor (lb/MMBtu) | Activity Factor (MMBtu/hr) | Maximum Emissions (lb/hr) |  |
| Sulfur dioxide--3-hr Average               | 0.30                       | 715                        | 214.5                     | --                         | --                         | --                        | --                         | --                         | --                        | 214.5                                  |
| --24-hr Average                            | 0.20                       | 715                        | 143.0                     | 0.05                       | 490                        | 24.5                      | 0.00058                    | 605                        | 0.4                       | 143.0                                  |
| Carbon monoxide--1-hr Average <sup>a</sup> | 6.5                        | 715                        | 4647.5                    | 1.0                        | 490                        | 490.0                     | 0.08                       | 605                        | 48.4                      | 4,647.5                                |
| --8-hr Average <sup>a</sup>                | 4.5                        | 715                        | 3217.5                    | --                         | --                         | --                        | --                         | --                         | --                        | 3,217.5                                |
| Sulfuric acid mist                         | 0.0184                     | 715                        | 13.16                     | 0.0015                     | 490                        | 0.74                      | 3.55E-05                   | 605                        | 0.02                      | 13.16                                  |

<sup>a</sup> Maximum emissions occur during cold start-up conditions. Normal maximum emissions are 1.0 MMBtu/hr for both the 1-hr and 8-hr averaging times.

Table 2-2. Maximum Fuel Usage and Heat Input Rates per Boiler, Okeelanta Power L.P. (Revised 5/25/01)

| Fuel                                    | Heat Input | Heat Transfer Efficiency (%) | Heat Output | Fuel Firing Rate           |
|---|------------|------------------------------|-------------|----------------------------|
| <u>Maximum Short-Term (per boiler)</u>  |            |                              |             |                            |
|   | (MMBtu/hr) |                              | (MMBtu/hr)  |                            |
| Biomass - Bagasse                       | 715        | 68                           | 486         | 195,730 lb/hr <sup>a</sup> |
| - Wood                                  | 715        | 68                           | 486         | 158,748 lb/hr <sup>b</sup> |
| No. 2 Fuel Oil                          | 490        | 85                           | 417         | 3,551 gal/hr               |
| Natural Gas                             | 605        | 85                           | 514         | 605,000 scf/hr             |
| <u>Annual Average (per boiler)</u>      |            |                              |             |                            |
|   | (Btu/yr)   |                              | (Btu/yr)    |                            |
| <u>NORMAL OPERATIONS (100% BIOMASS)</u> |            |                              |             |                            |
| Biomass                                 | 6.263E+12  | 68                           | 4.259E+12   | 857,295 TPY <sup>a</sup>   |
| No. 2 Fuel Oil                          | 0          | 85                           | 0           | 0 gal/yr                   |
| Natural Gas                             | 0          | 85                           | 0           | 0 MMscf/yr                 |
| TOTAL                                   | 6.263E+12  |                              | 4.259E+12   |                            |
| <u>24.9% OIL FIRING</u>                 |            |                              |             |                            |
| Biomass                                 | 4.428E+12  | 68                           | 3.011E+12   | 606,077 TPY <sup>a</sup>   |
| No. 2 Fuel Oil                          | 1.468E+12  | 85                           | 1.248E+12   | 10,638,685 gal/yr          |
| Natural Gas                             | 0          | 85                           | 0           | 0 MMscf/yr                 |
| TOTAL                                   | 5.896E+12  |                              | 4.259E+12   |                            |
| <u>24.9% NATURAL GAS FIRING</u>         |            |                              |             |                            |
| Biomass                                 | 4.428E+12  | 68                           | 3.011E+12   | 606,077 TPY <sup>a</sup>   |
| No. 2 Fuel Oil                          | 0          | 85                           | 0           | 0 gal/yr                   |
| Natural Gas                             | 1.468E+12  | 85                           | 1.248E+12   | 1,468 MMscf/yr             |
| TOTAL                                   | 5.896E+12  |                              | 4.259E+12   |                            |

<sup>a</sup> Based on bagasse firing.

<sup>b</sup> Based on wood firing.

Notes:

40 CFR 60, Subpart Da, limits fossil-fuel firing to less than 25% for each boiler (heat input basis).

Total heat output required = 4.259E+12 Btu/yr per boiler.

Fuels may be burned in combination, not to exceed total heat outputs.

Based on fuel heating values as follows:

Bagasse - 3,653 Btu/lb

Wood - 4,504 Btu/lb

No. 2 Fuel Oil - 138,000 Btu/gal

Natural gas - 1,000 Btu/scf

Table 2-3. Maximum Fuel Usage and Heat Input Rates, Total All Three Boilers, Okeelanta Power, L.P. (Revised 5/25/01)

| Fuel  | Heat Input       | Heat Transfer Efficiency (%) | Heat Output      | Fuel Firing Rate           |
|---|------------------|------------------------------|------------------|----------------------------|
| <u>Maximum Annual Average (total all three boilers)</u> |                  |                              |                  |                            |
| <u>NORMAL OPERATIONS</u>                                |                  |                              |                  |                            |
| Biomass   | 1.150E+13 Btu/yr | 68                           | 7.820E+12 Btu/yr | 1,436,945 TPY <sup>a</sup> |
| No. 2 Oil   | 0 Btu/yr         | 85                           | 0 Btu/yr         | 0 gal/yr                   |
| Natural Gas   | 0 Btu/yr         | 85                           | 0 Btu/yr         | 0 MMscf/yr                 |
| TOTAL   | 1.150E+13 Btu/yr |                              | 7.820E+12 Btu/yr |                            |
| <u>24.9% OIL FIRING</u>                                 |                  |                              |                  |                            |
| Biomass   | 8.130E+12 Btu/yr | 68                           | 5.528E+12 Btu/yr | 1,015,857 TPY <sup>a</sup> |
| No. 2 Oil   | 2.696E+12 Btu/yr | 85                           | 2.291E+12 Btu/yr | 19,533,086 gal/yr          |
| Natural Gas   | 0 Btu/yr         | 85                           | 0 Btu/yr         | 0 MMscf/yr                 |
| TOTAL   | 1.083E+13 Btu/yr |                              | 7.820E+12 Btu/yr |                            |
| <u>24.9% NATURAL GAS FIRING</u>                         |                  |                              |                  |                            |
| Biomass   | 8.130E+12 Btu/yr | 68                           | 5.528E+12 Btu/yr | 1,015,857 TPY <sup>a</sup> |
| No. 2 Oil   | 0 Btu/yr         | 85                           | 0 Btu/yr         | 0 gal/yr                   |
| Natural Gas   | 2.696E+12 Btu/yr | 85                           | 2.291E+12 Btu/yr | 2,696 MMscf/yr             |
| TOTAL   | 1.083E+13 Btu/yr |                              | 7.820E+12 Btu/yr |                            |

<sup>a</sup> Assumes 53.9% of annual heat input from bagasse, and 46.1% from wood.

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.

Table 2-4. Maximum Annual Emissions for Single Boiler at Okeelanta Power L.P. (Revised 6/4/01)

| Regulated<br>Pollutant                   | Biomass                          |   |                              | Alternate Fuel                   |   |                              | Total<br>Annual<br>Emissions<br>(TPY) |
|--|----------------------------------|---|------------------------------|----------------------------------|---|------------------------------|---------------------------------------|
|  | Emission<br>Factor<br>(lb/MMBtu) | Activity<br>Factor<br>(10 <sup>12</sup> Btu/yr) | Annual<br>Emissions<br>(TPY) | Emission<br>Factor<br>(lb/MMBtu) | Activity<br>Factor<br>(10 <sup>12</sup> Btu/yr) | Annual<br>Emissions<br>(TPY) |                                       |
| <u>100% Biomass</u>                      |                                  |   |                              |                                  |   |                              |                                       |
| Particulate (TSP)                        | 0.03                             | 6.263   | 93.95                        | --                               | --  | --                           | 93.95 a                               |
| Particulate (PM <sub>10</sub> )          | 0.03                             | 6.263   | 93.95                        | --                               | --  | --                           | 93.95 a                               |
| Sulfur dioxide                           | 0.10                             | 6.263   | 313.15                       | --                               | --  | --                           | 313.15 a                              |
| Nitrogen oxides                          | 0.15                             | 6.263   | 469.73                       | --                               | --  | --                           | 469.73 a                              |
| Carbon monoxide                          | 0.35                             | 6.263   | 1,096.03                     | --                               | --  | --                           | 1,096.03 a                            |
| VOC                                      | 0.06                             | 6.263   | 187.89                       | --                               | --  | --                           | 187.89 a                              |
| Lead                                     | 1.6E-04                          | 6.263   | 0.501                        | --                               | --  | --                           | 0.501 a                               |
| Mercury                                  | 5.43E-06                         | 6.263   | 0.0170                       | --                               | --  | --                           | 0.0170 a                              |
| Beryllium                                | --                               | --  | --                           | --                               | --  | --                           | --                                    |
| Fluorides                                | 7.00E-04                         | 6.263   | 2.19                         | --                               | --  | --                           | 2.19 a                                |
| Sulfuric acid mist                       | 0.0184                           | 6.263   | 57.62                        | --                               | --  | --                           | 57.62 a                               |
| <u>75.1% Biomass / 24.9% Fuel Oil</u>    |                                  |   |                              |                                  |   |                              |                                       |
| Particulate (TSP)                        | 0.03                             | 4.428   | 66.42                        | 0.03                             | 1.468   | 22.02                        | 88.44                                 |
| Particulate (PM <sub>10</sub> )          | 0.03                             | 4.428   | 66.42                        | 0.03                             | 1.468   | 22.02                        | 88.44                                 |
| Sulfur dioxide                           | 0.10                             | 4.428   | 221.40                       | 0.05                             | 1.468   | 36.70                        | 258.10                                |
| Nitrogen oxides                          | 0.15                             | 4.428   | 332.10                       | 0.15                             | 1.468   | 110.10                       | 442.20                                |
| Carbon monoxide                          | 0.35                             | 4.428   | 774.90                       | 0.35                             | 1.468   | 256.90                       | 1,031.80                              |
| VOC                                      | 0.06                             | 4.428   | 132.84                       | 0.03                             | 1.468   | 22.02                        | 154.86                                |
| Lead                                     | 1.6E-04                          | 4.428   | 0.354                        | 8.9E-07                          | 1.468   | 0.0007                       | 0.355                                 |
| Mercury                                  | 5.43E-06                         | 4.428   | 0.0120                       | 2.4E-06                          | 1.468   | 0.0018                       | 0.0138                                |
| Beryllium                                | --                               | --  | --                           | 3.5E-07                          | 1.468   | 0.00026                      | 0.00026 a                             |
| Fluorides                                | 7.00E-04                         | 4.428   | 1.55                         | 6.27E-06                         | 1.468   | 0.0046                       | 1.5544                                |
| Sulfuric acid mist                       | 0.0184                           | 4.428   | 40.74                        | 0.0015                           | 1.468   | 1.10                         | 41.84                                 |
| <u>75.1% Biomass / 24.9% Natural Gas</u> |                                  |   |                              |                                  |   |                              |                                       |
| Particulate (TSP)                        | 0.03                             | 4.428   | 66.42                        | 0.0073                           | 1.468   | 5.36                         | 71.78                                 |
| Particulate (PM <sub>10</sub> )          | 0.03                             | 4.428   | 66.42                        | 0.0073                           | 1.468   | 5.36                         | 71.78                                 |
| Sulfur dioxide                           | 0.10                             | 4.428   | 221.40                       | 0.00058                          | 1.468   | 0.43                         | 221.83                                |
| Nitrogen oxides                          | 0.15                             | 4.428   | 332.10                       | 0.15                             | 1.468   | 110.10                       | 442.20                                |
| Carbon monoxide                          | 0.35                             | 4.428   | 774.90                       | 0.08                             | 1.468   | 58.72                        | 833.62                                |
| VOC                                      | 0.06                             | 4.428   | 132.84                       | 0.0053                           | 1.468   | 3.89                         | 136.73                                |
| Lead                                     | 1.6E-04                          | 4.428   | 0.354                        | 4.8E-07                          | 1.468   | 0.0004                       | 0.355                                 |
| Mercury                                  | 5.43E-06                         | 4.428   | 0.0120                       | 2.5E-07                          | 1.468   | 0.0002                       | 0.0122                                |
| Beryllium                                | --                               | --  | --                           | 1.2E-08                          | 1.468   | 0.00001                      | 0.00001                               |
| Fluorides                                | 7.00E-04                         | 4.428   | 1.55                         | --                               | --  | --                           | 1.5498                                |
| Sulfuric acid mist                       | 0.0184                           | 4.428   | 40.74                        | 3.55E-05                         | 1.468   | 0.03                         | 40.76                                 |

<sup>a</sup> Denotes maximum annual emissions for any fuel scenario.

<sup>b</sup> Represents 50% of total heat input due to bagasse.

<sup>c</sup> Represents 50% of total heat input due to wood.

Note: No emissions of total reduced sulfur, asbestos, or vinyl chloride are expected.

Fuel type percentages are based on heat input.

Table 2-5. Maximum Annual Emissions for Okeelanta Power Cogeneration Facility (total all boilers, Revised 6/4/01)

| Regulated<br>Pollutant                   | Biomass                          |   |                              | Alternate Fuel                   |   |                              | Total<br>Annual<br>Emissions<br>(TPY) |
|--|----------------------------------|---|------------------------------|----------------------------------|---|------------------------------|---------------------------------------|
|  | Emission<br>Factor<br>(lb/MMBtu) | Activity<br>Factor<br>(10 <sup>12</sup> Btu/yr) | Annual<br>Emissions<br>(TPY) | Emission<br>Factor<br>(lb/MMBtu) | Activity<br>Factor<br>(10 <sup>12</sup> Btu/yr) | Annual<br>Emissions<br>(TPY) |                                       |
| <u>100% Biomass</u>                      |                                  |   |                              |                                  |   |                              |                                       |
| Particulate (TSP)                        | 0.03                             | 11.500  | 172.50                       | --                               | --  | --                           | 172.50 a                              |
| Particulate (PM <sub>10</sub> )          | 0.03                             | 11.500  | 172.50                       | --                               | --  | --                           | 172.50 a                              |
| Sulfur dioxide                           | 0.10                             | 11.500  | 575.00                       | --                               | --  | --                           | 575.00 a                              |
| Nitrogen oxides                          | 0.15                             | 11.500  | 862.50                       | --                               | --  | --                           | 862.50 a                              |
| Carbon monoxide                          | 0.35                             | 11.500  | 2,012.50                     | --                               | --  | --                           | 2,012.50 a                            |
| VOC                                      | 0.06                             | 11.500  | 345.00                       | --                               | --  | --                           | 345.00 a                              |
| Lead                                     | 1.6E-04                          | 11.500  | 0.920                        | --                               | --  | --                           | 0.920 a                               |
| Mercury                                  | 5.43E-06                         | 11.500  | 0.0312                       | --                               | --  | --                           | 0.031 a                               |
| Beryllium                                | --                               | --  | --                           | --                               | --  | --                           | --                                    |
| Fluorides                                | 7.00E-04                         | 11.500  | 4.03                         | --                               | --  | --                           | 4.03 a                                |
| Sulfuric acid mist                       | 0.0184                           | 11.500  | 105.80                       | --                               | --  | --                           | 105.80 a                              |
| <u>75.1% Biomass / 24.9% Fuel Oil</u>    |                                  |   |                              |                                  |   |                              |                                       |
| Particulate (TSP)                        | 0.03                             | 8.130   | 121.95                       | 0.03                             | 2.696   | 40.44                        | 162.39                                |
| Particulate (PM <sub>10</sub> )          | 0.03                             | 8.130   | 121.95                       | 0.03                             | 2.696   | 40.44                        | 162.39                                |
| Sulfur dioxide                           | 0.10                             | 8.130   | 406.50                       | 0.05                             | 2.696   | 67.40                        | 473.90                                |
| Nitrogen oxides                          | 0.15                             | 8.130   | 609.75                       | 0.15                             | 2.696   | 202.20                       | 811.95                                |
| Carbon monoxide                          | 0.35                             | 8.130   | 1,422.75                     | 0.35                             | 2.696   | 471.80                       | 1,894.55                              |
| VOC                                      | 0.06                             | 8.130   | 243.90                       | 0.03                             | 2.696   | 40.44                        | 284.34                                |
| Lead                                     | 1.6E-04                          | 8.130   | 0.650                        | 8.9E-07                          | 2.696   | 0.0012                       | 0.652                                 |
| Mercury                                  | 5.43E-06                         | 8.130   | 0.0221                       | 2.4E-06                          | 2.696   | 0.0032                       | 0.025                                 |
| Beryllium                                | --                               | --  | --                           | 3.5E-07                          | 2.696   | 0.00047                      | 0.00047 a                             |
| Fluorides                                | 7.00E-04                         | 8.130   | 2.85                         | 6.27E-06                         | 2.696   | 0.0085                       | 2.854                                 |
| Sulfuric acid mist                       | 0.0184                           | 8.130   | 74.80                        | 0.0015                           | 2.696   | 2.02                         | 76.82                                 |
| <u>75.1% Biomass / 24.9% Natural Gas</u> |                                  |   |                              |                                  |   |                              |                                       |
| Particulate (TSP)                        | 0.03                             | 8.130   | 121.95                       | 0.0073                           | 2.696   | 9.84                         | 131.79                                |
| Particulate (PM <sub>10</sub> )          | 0.03                             | 8.130   | 121.95                       | 0.0073                           | 2.696   | 9.84                         | 131.79                                |
| Sulfur dioxide                           | 0.10                             | 8.130   | 406.50                       | 0.00058                          | 2.696   | 0.78                         | 407.28                                |
| Nitrogen oxides                          | 0.15                             | 8.130   | 609.75                       | 0.15                             | 2.696   | 202.20                       | 811.95                                |
| Carbon monoxide                          | 0.35                             | 8.130   | 1,422.75                     | 0.08                             | 2.696   | 107.84                       | 1,530.59                              |
| VOC                                      | 0.06                             | 8.130   | 243.90                       | 0.0053                           | 2.696   | 7.14                         | 251.04                                |
| Lead                                     | 1.6E-04                          | 8.130   | 0.650                        | 4.8E-07                          | 2.696   | 0.0006                       | 0.651                                 |
| Mercury                                  | 5.43E-06                         | 8.130   | 0.0221                       | 2.5E-07                          | 2.696   | 0.0003                       | 0.022                                 |
| Beryllium                                | --                               | --  | --                           | 1.2E-08                          | 2.696   | 0.00002                      | 0.00002                               |
| Fluorides                                | 7.00E-04                         | 8.130   | 2.85                         | --                               | --  | --                           | 2.846                                 |
| Sulfuric acid mist                       | 0.0184                           | 8.130   | 74.80                        | 3.55E-05                         | 2.696   | 0.05                         | 74.84                                 |

<sup>a</sup> Denotes maximum annual emissions for any fuel scenario.

<sup>b</sup> Represents 50% of total heat input due to bagasse.

<sup>c</sup> Represents 50% of total heat input due to wood.

Note: No emissions of total reduced sulfur, asbestos, or vinyl chloride are expected.

Table 3-1. Current Actual and Future Potential CO and SO<sub>2</sub> Emissions, Okeelanta Power L.P. (Revised 6/4/01)

| Boiler                        | Operating Hours <sup>a</sup> | Heat Input <sup>a</sup><br>(MMBtu/yr) | Annual Emissions (TPY) |                 |       |         |
|-------------------------------|------------------------------|---------------------------------------|------------------------|-----------------|-------|---------|
|                               |                              |                                       | CO                     | SO <sub>2</sub> | Lead  | Mercury |
| Boiler A                      | 7,265                        | 3,824,398                             | 478.34                 | 47.11           | 0.047 | 0.0015  |
| Boiler B                      | 5,927                        | 3,206,304                             | 485.29                 | 38.32           | 0.076 | 0.0016  |
| Boiler C                      | 6,978                        | 3,694,714                             | 562.44                 | 47.80           | 0.334 | 0.0036  |
| Total                         | 20,170                       | 10,725,416                            | 1,526.07               | 133.23          | 0.456 | 0.0066  |
| Requested Permit Limit        |                              | 11,500,000                            | 2,012.5                | 575.0           | 0.920 | 0.031   |
| Net Increase                  |                              |                                       | 486.4                  | 441.8           | 0.464 | 0.0246  |
| PSD Significant Emission Rate |                              |                                       | 100                    | 40              | 0.6   | 0.1     |

<sup>a</sup> Based on the period April 1999 through March 2000.

Table 3-2. Current Actual Lead and Mercury Emissions for Okeelanta Power L.P. Boilers (Revised 6/4/01)

| Parameter                                 | Lead     |           | Mercury   |          | Lead      |           | Mercury |           |           |
|---|----------|-----------|-----------|----------|-----------|-----------|---------|-----------|-----------|
|   | Boiler A |           | Boiler B  |          | Boiler C  |           |         |           |           |
| <u>Emission Factor (lb/MMBtu)</u>         |          |           |           |          |           |           |         |           |           |
| Wood waste <sup>a</sup>                   | 2.96E-05 | 1.20E-06  | 8.39E-05  | 1.50E-06 | 3.97E-04  | 3.60E-06  |         |           |           |
| Bagasse <sup>a</sup>                      | 2.03E-05 | 4.41E-07  | 7.30E-06  | 3.83E-07 | 6.29E-06  | 5.41E-07  |         |           |           |
| No. 2 Fuel <sup>b</sup>                   | 8.90E-07 | 2.40E-06  | 8.90E-07  | 2.40E-06 | 8.90E-07  | 2.40E-06  |         |           |           |
| <u>Heat Input (MMBtu/yr) <sup>c</sup></u> |          |           |           |          |           |           |         |           |           |
| Wood                                      | 45.68%   | 1,746,985 | 1,746,985 | 52.05%   | 1,668,881 | 1,668,881 | 44.68%  | 1,650,798 | 1,650,798 |
| Bagasse                                   | 53.69%   | 2,053,319 | 2,053,319 | 47.34%   | 1,517,864 | 1,517,864 | 54.48%  | 2,012,880 | 2,012,880 |
| No. 2                                     | 0.63%    | 24,094    | 24,094    | 0.61%    | 19,558    | 19,558    | 0.84%   | 31,036    | 31,036    |
| Total                                     |          | 3,824,398 | 3,824,398 |          | 3,206,304 | 3,206,304 |         | 3,694,714 | 3,694,714 |
| <u>Emissions (TPY)</u>                    |          |           |           |          |           |           |         |           |           |
| April 1999 - March 2000                   |          | 0.047     | 0.0015    |          | 0.076     | 0.0016    |         | 0.33      | 0.0036    |
| Emissions                                 |          |           |           |          |           |           |         |           |           |

<sup>a</sup> Based on actual stack test data for the fuel type.

<sup>b</sup> Based upon permit limit.

<sup>c</sup> Based upon actual boiler heat input for period April 1999 - March 2000.



Table C-1. Cogeneration Boiler Emission Rates for Okeelanta Power, L.P.--Total all Three Boilers

| Pollutant               | Total Heat Input Rate <sup>a</sup><br>(MMBtu/hr) | CURRENT ACTUAL EMISSIONS |       |                          |       | FUTURE POTENTIAL EMISSIONS        |          |                                       |       |
|-------------------------|--|--------------------------|-------|--------------------------|-------|-----------------------------------|----------|---------------------------------------|-------|
|                         |  | Short-Term Emissions     |       | Annual Average Emissions |       | Short-Term Emissions <sup>b</sup> |          | Annual Average Emissions <sup>c</sup> |       |
|                         |  | lb/hr                    | g/sec | TPY                      | g/sec | lb/hr                             | g/sec    | TPY                                   | g/sec |
| Carbon Monoxide--1-Hour | 2,145  | 750.75 <sup>d</sup>      | 94.6  | --                       | --    | 13,942.5                          | 1,756.73 | --                                    | --    |
| --8-Hour                | 2,145  | 750.75 <sup>d</sup>      | 94.6  | --                       | --    | 9,652.5                           | 1,216.20 | --                                    | --    |

<sup>a</sup> Three boilers at 715 MMBtu/hr each.

<sup>b</sup> Future potential emissions from Table 2-1 of permit application.

<sup>c</sup> Future potential emissions from Table 2-5 of permit application.

<sup>d</sup> Based on original 8-hr CO limit of 0.35 lb/MMBtu.

Table C-2. Stack Parameters<sup>a</sup> for Okeelanta Power, L.P. Boilers

| ISCST ID      | Heat Input Rate<br>(MMBtu/hr) | Stack/Vent Release Height |       | Stack/Vent Diameter |      | Gas Flow Rate<br>(acfm) | Gas Exit Temperature |     | Velocity |       |
|---------------|-------------------------------|---------------------------|-------|---------------------|------|-------------------------|----------------------|-----|----------|-------|
|               |                               | ft                        | m     | ft                  | m    |                         | °F                   | K   | ft/sec   | m/sec |
| COGENC/COGENF | 715                           | 199                       | 60.66 | 10                  | 3.05 | 300,000                 | 373                  | 463 | 64       | 19.4  |

<sup>a</sup> Representative of all 3 boiler stacks.

Table C- 3. Summary of CO Facilities Considered for Inclusion in the AAQS and PSD Class II Air Modeling Analyses

| AIRS<br>Number | Facility                      | County     | UTM Coordinates |               | Relative to Okeelanta Power <sup>a</sup> |           |                  |                    | Maximum<br>CO<br>Emissions<br>(TPY) | Q, (TPY)<br>Emission<br>Threshold <sup>b</sup><br>(Dist - 6) x 20 | Include in<br>Modeling<br>Analysis ? |
|----------------|-------------------------------|------------|-----------------|---------------|--|-----------|------------------|--------------------|-------------------------------------|---|--------------------------------------|
|                |                               |            | East<br>(km)    | North<br>(km) | X<br>(km)                                | Y<br>(km) | Distance<br>(km) | Direction<br>(deg) |                                     |   |                                      |
| 0990086        | Glades Correctional Institute | Palm Beach | 523.4           | 2955.2        | -1.5                                     | 15.1      | 15.2             | 354                | 10                                  | 183.5   | NO                                   |
| 0990026        | Sugar Cane Growers            | Palm Beach | 534.9           | 2953.3        | 10.0                                     | 13.2      | 16.6             | 37                 | 33,771                              | 211.2   | YES                                  |
| 0510001        | Everglades Sugar              | Hendry     | 509.6           | 2954.2        | -15.3                                    | 14.1      | 20.8             | 313                | 15                                  | 296.1   | NO                                   |
| 0510003        | U.S. Sugar Clewiston          | Hendry     | 506.1           | 2956.9        | -18.8                                    | 16.8      | 25.2             | 312                | 64,644                              | 384.3   | YES                                  |
| 0990016        | Atlantic Sugar Association    | Palm Beach | 552.9           | 2945.2        | 28.0                                     | 5.1       | 28.5             | 80                 | 25,065                              | 449.2   | YES                                  |
| 0990061        | U.S. Sugar -Bryant            | Palm Beach | 538.8           | 2968.1        | 13.9                                     | 28.0      | 31.3             | 26                 | 19,958                              | 505.2   | YES                                  |
| 0990019        | Osceola Farms                 | Palm Beach | 544.2           | 2968.0        | 19.3                                     | 27.9      | 33.9             | 35                 | 25,175                              | 558.5   | YES                                  |
| 0510015        | Southern Gardens Citrus       | Hendry     | 487.6           | 2957.6        | -37.3                                    | 17.5      | 41.2             | 295                | 1,888                               | 704.0   | YES                                  |
| 0990021        | Pratt & Whitney               | Palm Beach | 559.2           | 2978.3        | 34.3                                     | 38.2      | 51.3             | 42                 | 30                                  | 906.8   | NO                                   |
| 0850102        | Bechtel Indiantown            | Martin     | 545.6           | 2991.5        | 20.7                                     | 51.4      | 55.4             | 22                 | 1,651                               | 988.2   | YES                                  |
| 0850001        | FPL -Martin                   | Martin     | 543.1           | 2992.9        | 18.2                                     | 52.8      | 55.8             | 19                 | 2,285                               | 997.0   | YES                                  |
| 0500045        | Lake Worth Utilities          | Palm Beach | 592.8           | 2943.7        | 67.9                                     | 3.6       | 68.0             | 87                 | 204                                 | 1239.9  | NO                                   |
| 0360119        | Lee County Resource Recovery  | Lee        | 424.0           | 2946.0        | -100.9                                   | 5.9       | 101.1            | 273                | 238                                 | 1901.4  | YES                                  |
| 0710002        | FPL - Fort Myers <sup>c</sup> | Lee        | 422.1           | 2952.9        | -102.8                                   | 12.8      | 103.6            | 277                | 4,478                               | 1951.9  | YES                                  |

<sup>a</sup> Okeelanta Power Coordinates: 524.9 2940.1

<sup>b</sup> Proposed project's emissions are significant to 6 kilometers.  
Emission inventory is limited to facilities within 56 km of Okeelanta facility but includes major plants outside the proposed project's significant impact distance.

<sup>c</sup> Large source beyond screening area included in modeling analysis.

Table C-4. Summary of CO Sources Included in the Air Modeling Analysis

| AIRS Number | Facility                                | Units               | ISCST3 ID Name | Stack and Operating Parameters |              |                 |                | Emission Rate (g/s) |
|-------------|---|---------------------|----------------|--------------------------------|--------------|-----------------|----------------|---------------------|
|             |   |                     |                | Height (m)                     | Diameter (m) | Temperature (K) | Velocity (m/s) |                     |
| 0990026     | Sugar Cane Growers <sup>a</sup>         | Unit 1&2            | SUGCN12        | 45.7                           | 1.87         | 339.0           | 21.75          | 547.09              |
|             |   | Unit 3              | SUGCN3         | 27.4                           | 1.52         | 339.0           | 22.25          | 187.61              |
|             |   | Unit 4 PSD          | SUGCN4         | 54.9                           | 2.44         | 339.0           | 21.73          | 467.71              |
|             |   | Unit 5              | SUGCN5         | 45.7                           | 2.30         | 339.0           | 15.94          | 359.60              |
|             |   | Unit 8 PSD          | SUGCN8         | 47.2                           | 2.90         | 339.0           | 13.62          | 381.02              |
| 0510003     | U.S. Sugar Clewiston                    | Unit 1              | BRL1           | 65.0                           | 2.44         | 347.0           | 19.20          | 811.79              |
|             |   | Unit 2              | BLR2           | 65.0                           | 2.44         | 338.0           | 17.32          | 732.19              |
|             |   | Unit 3              | BLR3           | 65.0                           | 2.44         | 333.2           | 8.47           | 334.28              |
|             |   | Unit 4              | BLR4           | 45.7                           | 2.51         | 344.3           | 25.35          | 518.43              |
|             |   | Unit 7              | BLR7           | 68.6                           | 2.59         | 405.4           | 25.96          | 71.62               |
| 0990016     | Atlantic Sugar Association <sup>a</sup> | Unit 1              | ATLSUG1        | 27.4                           | 1.83         | 346.0           | 17.97          | 299.90              |
|             |   | Unit 2              | ATLSUG2        | 27.4                           | 1.83         | 350.0           | 23.36          | 585.60              |
|             |   | Unit 3              | ATLSUG3        | 27.4                           | 1.83         | 350.0           | 21.56          | 180.20              |
|             |   | Unit 4              | ATLSUG4        | 27.4                           | 1.83         | 344.0           | 25.16          | 180.20              |
|             |   | Unit 5 <sup>b</sup> | ATLSUG5        | 27.4                           | 1.68         | 339.0           | 19.24          | 209.10              |
| 0990061     | U.S. Sugar -Bryant <sup>a</sup>         | Unit 5 PSD          | USSBRY5        | 42.7                           | 2.90         | 345.0           | 11.49          | 760.91              |
|             |   | Unit 1,2&3          | USBRY123       | 19.8                           | 1.64         | 342.0           | 36.40          | 1309.77             |
| 0990019     | Osceola Farms <sup>a</sup>              | Unit 2              | OSBLR2         | 27.4                           | 1.52         | 339.0           | 18.63          | 317.52              |
|             |   | Unit 3              | OSBLR3         | 27.4                           | 1.92         | 344.0           | 14.34          | 128.77              |
|             |   | Unit 4              | OSBLR4         | 27.4                           | 1.83         | 344.0           | 16.53          | 317.52              |
|             |   | Unit 5              | OSBLR5         | 27.4                           | 1.52         | 344.0           | 17.85          | 374.22              |
|             |   | Unit 6              | OSBLR6         | 27.4                           | 1.92         | 339.0           | 18.25          | 310.40              |
| 0510015     | Southern Gardens Citrus - PSD           | Peel Dryer          | SGARDDRY       | 38.1                           | 1.16         | 353.0           | 7.45           | 116.68              |
|             |   | Boilers 1-3         | SGARDBLR       | 16.8                           | 1.22         | 478.0           | 14.23          | 0.50                |
| 0850102     | Bechtel Indiantown                      |                     | BECITIND       | 150.9                          | 4.88         | 333.2           | 30.50          | 47.38               |
| 0850001     | FPL -Martin                             | Units 1&2           | MART12         | 152.1                          | 7.99         | 420.9           | 21.03          | 38.92               |
|             |   | Aux Blr PSD         | MARTAUX        | 18.3                           | 1.10         | 535.4           | 15.24          | -                   |
|             |   | Diesel Gens PSD     | MARTGEN        | 7.6                            | 0.30         | 785.9           | 39.62          | -                   |
|             |   | Units 3&4 PSD       | MART34         | 64.9                           | 6.10         | 410.9           | 18.90          | 26.66               |
| 0710119     | Lee County Energy Recovery Facility     | Units 1 & 2         | LEECORRF       | 84.1                           | 1.98         | 416.5           | 22.86          | 6.85                |
| 0710002     | FPL Fort Myers                          | Gas Turbines 1 - 12 | FMGT112        | 9.8                            | 3.47         | 797.0           | 57.73          | 61.69               |
|             |   | HRSGs 1-6           | FMCT1_6        | 38.1                           | 5.79         | 377.6           | 21.43          | 32.51               |
|             |   | CT 1 - 2            | FMCT1_2        | 24.4                           | 6.25         | 852.00          | 39.1           | 34.32               |

<sup>a</sup> Facilities or sources with facilities that operate only during the October 1 through April 30 crop season.

<sup>b</sup> Sugar mill sources that operate all year.

Table C-5. Okeelanta Power, L.P. Property Boundary Receptors<sup>a</sup> Used In the Modeling Analysis

| Coordinates <sup>b</sup> |        | Coordinates <sup>b</sup> |        | Coordinates <sup>b</sup> |        | Coordinates <sup>b</sup> |        | Coordinates <sup>b</sup> |        |
|--------------------------|--------|--------------------------|--------|--------------------------|--------|--------------------------|--------|--------------------------|--------|
| X                        | Y      | X                        | Y      | X                        | Y      | X                        | Y      | X                        | Y      |
| (m)                      | (m)    | (m)                      | (m)    | (m)                      | (m)    | (m)                      | (m)    | (m)                      | (m)    |
| -9699.6                  | 444.2  | -9509.5                  | 3738.7 | -6259.5                  | 3791.6 | -2959.5                  | 3791.6 | 340.5                    | 3791.6 |
| -9693.9                  | 544.0  | -9459.5                  | 3791.6 | -6159.5                  | 3791.6 | -2859.5                  | 3791.6 | 440.5                    | 3791.6 |
| -9688.1                  | 643.9  | -9359.5                  | 3791.6 | -6059.5                  | 3791.6 | -2759.5                  | 3791.6 | 540.5                    | 3791.6 |
| -9682.3                  | 743.7  | -9259.5                  | 3791.6 | -5959.5                  | 3791.6 | -2659.5                  | 3791.6 | 640.5                    | 3791.6 |
| -9676.6                  | 843.5  | -9159.5                  | 3791.6 | -5859.5                  | 3791.6 | -2559.5                  | 3791.6 | 740.5                    | 3791.6 |
| -9670.8                  | 943.4  | -9059.5                  | 3791.6 | -5759.5                  | 3791.6 | -2459.5                  | 3791.6 | 840.5                    | 3791.6 |
| -9665.1                  | 1043.2 | -8959.5                  | 3791.6 | -5659.5                  | 3791.6 | -2359.5                  | 3791.6 | 940.5                    | 3791.6 |
| -9659.3                  | 1143.0 | -8859.5                  | 3791.6 | -5559.5                  | 3791.6 | -2259.5                  | 3791.6 | 1040.5                   | 3791.6 |
| -9653.5                  | 1242.9 | -8759.5                  | 3791.6 | -5459.5                  | 3791.6 | -2159.5                  | 3791.6 | 1140.5                   | 3791.6 |
| -9647.8                  | 1342.7 | -8659.5                  | 3791.6 | -5359.5                  | 3791.6 | -2059.5                  | 3791.6 | 1240.5                   | 3791.6 |
| -9642.0                  | 1442.5 | -8559.5                  | 3791.6 | -5259.5                  | 3791.6 | -1959.5                  | 3791.6 | 1340.5                   | 3791.6 |
| -9636.3                  | 1542.4 | -8459.5                  | 3791.6 | -5159.5                  | 3791.6 | -1859.5                  | 3791.6 | 1440.5                   | 3791.6 |
| -9630.5                  | 1642.2 | -8359.5                  | 3791.6 | -5059.5                  | 3791.6 | -1759.5                  | 3791.6 | 1540.5                   | 3791.6 |
| -9624.7                  | 1742.0 | -8259.5                  | 3791.6 | -4959.5                  | 3791.6 | -1659.5                  | 3791.6 | 1640.5                   | 3791.6 |
| -9619.0                  | 1841.9 | -8159.5                  | 3791.6 | -4859.5                  | 3791.6 | -1559.5                  | 3791.6 | 1740.5                   | 3791.6 |
| -9613.2                  | 1941.7 | -8059.5                  | 3791.6 | -4759.5                  | 3791.6 | -1459.5                  | 3791.6 | 1840.5                   | 3791.6 |
| -9607.5                  | 2041.5 | -7959.5                  | 3791.6 | -4659.5                  | 3791.6 | -1359.5                  | 3791.6 | 1940.5                   | 3791.6 |
| -9601.7                  | 2141.4 | -7859.5                  | 3791.6 | -4559.5                  | 3791.6 | -1259.5                  | 3791.6 | 2040.5                   | 3791.6 |
| -9595.9                  | 2241.2 | -7759.5                  | 3791.6 | -4459.5                  | 3791.6 | -1159.5                  | 3791.6 | 2140.5                   | 3791.6 |
| -9590.2                  | 2341.0 | -7659.5                  | 3791.6 | -4359.5                  | 3791.6 | -1059.5                  | 3791.6 | 2240.5                   | 3791.6 |
| -9584.4                  | 2440.9 | -7559.5                  | 3791.6 | -4259.5                  | 3791.6 | -959.5                   | 3791.6 | 2306.1                   | 3757.2 |
| -9578.7                  | 2540.7 | -7459.5                  | 3791.6 | -4159.5                  | 3791.6 | -859.5                   | 3791.6 | 2306.1                   | 3657.2 |
| -9572.9                  | 2640.5 | -7359.5                  | 3791.6 | -4059.5                  | 3791.6 | -759.5                   | 3791.6 | 2306.1                   | 3557.2 |
| -9567.1                  | 2740.4 | -7259.5                  | 3791.6 | -3959.5                  | 3791.6 | -659.5                   | 3791.6 | 2306.1                   | 3457.2 |
| -9561.4                  | 2840.2 | -7159.5                  | 3791.6 | -3859.5                  | 3791.6 | -559.5                   | 3791.6 | 2306.1                   | 3357.2 |
| -9555.6                  | 2940.0 | -7059.5                  | 3791.6 | -3759.5                  | 3791.6 | -459.5                   | 3791.6 | 2306.1                   | 3257.2 |
| -9549.9                  | 3039.9 | -6959.5                  | 3791.6 | -3659.5                  | 3791.6 | -359.5                   | 3791.6 | 2306.1                   | 3157.2 |
| -9544.1                  | 3139.7 | -6859.5                  | 3791.6 | -3559.5                  | 3791.6 | -259.5                   | 3791.6 | 2306.1                   | 3057.2 |
| -9538.3                  | 3239.5 | -6759.5                  | 3791.6 | -3459.5                  | 3791.6 | -159.5                   | 3791.6 | 2306.1                   | 2957.2 |
| -9532.6                  | 3339.4 | -6659.5                  | 3791.6 | -3359.5                  | 3791.6 | -59.5                    | 3791.6 | 2306.1                   | 2857.2 |
| -9526.8                  | 3439.2 | -6559.5                  | 3791.6 | -3259.5                  | 3791.6 | 40.5                     | 3791.6 | 2306.1                   | 2757.2 |
| -9521.1                  | 3539.0 | -6459.5                  | 3791.6 | -3159.5                  | 3791.6 | 140.5                    | 3791.6 | 2306.1                   | 2657.2 |
| -9515.3                  | 3638.9 | -6359.5                  | 3791.6 | -3059.5                  | 3791.6 | 240.5                    | 3791.6 | 2306.1                   | 2557.2 |

<sup>a</sup> Receptors were selected at 100-meter spacing along property boundary.

<sup>b</sup> Distances are relative to the Cogeneration Boiler B stack.

Note: m = meter

Table C-5. Okeelanta Power, L.P. Property Boundary Receptors<sup>a</sup> Used In the Modeling Analysis (continued)

| Coordinates <sup>b</sup> |        | Coordinates <sup>b</sup> |         | Coordinates <sup>b</sup> |         | Coordinates <sup>b</sup> |         | Coordinates <sup>b</sup> |         |
|--------------------------|--------|--------------------------|---------|--------------------------|---------|--------------------------|---------|--------------------------|---------|
| X                        | Y      | X                        | Y       | X                        | Y       | X                        | Y       | X                        | Y       |
| (m)                      | (m)    | (m)                      | (m)     | (m)                      | (m)     | (m)                      | (m)     | (m)                      | (m)     |
| 2306.1                   | 2457.2 | 3448.7                   | 299.8   | 3696.1                   | -2838.9 | 396.1                    | -2838.9 | -2903.9                  | -2838.9 |
| 2306.1                   | 2357.2 | 3448.7                   | 199.8   | 3596.1                   | -2838.9 | 296.1                    | -2838.9 | -3003.9                  | -2838.9 |
| 2306.1                   | 2257.2 | 3448.7                   | 99.8    | 3496.1                   | -2838.9 | 196.1                    | -2838.9 | -3103.9                  | -2838.9 |
| 2306.1                   | 2157.2 | 3448.7                   | -0.2    | 3396.1                   | -2838.9 | 96.1                     | -2838.9 | -3203.9                  | -2838.9 |
| 2366.8                   | 2117.9 | 3448.7                   | -100.2  | 3296.1                   | -2838.9 | -3.9                     | -2838.9 | -3303.9                  | -2838.9 |
| 2466.8                   | 2117.9 | 3448.7                   | -200.2  | 3196.1                   | -2838.9 | -103.9                   | -2838.9 | -3403.9                  | -2838.9 |
| 2566.8                   | 2117.9 | 3448.7                   | -300.2  | 3096.1                   | -2838.9 | -203.9                   | -2838.9 | -3503.9                  | -2838.9 |
| 2666.8                   | 2117.9 | 3448.7                   | -400.2  | 2996.1                   | -2838.9 | -303.9                   | -2838.9 | -3603.9                  | -2838.9 |
| 2766.8                   | 2117.9 | 3448.7                   | -500.2  | 2896.1                   | -2838.9 | -403.9                   | -2838.9 | -3703.9                  | -2838.9 |
| 2866.8                   | 2117.9 | 3448.7                   | -600.2  | 2796.1                   | -2838.9 | -503.9                   | -2838.9 | -3803.9                  | -2838.9 |
| 2966.8                   | 2117.9 | 3448.7                   | -700.2  | 2696.1                   | -2838.9 | -603.9                   | -2838.9 | -3903.9                  | -2838.9 |
| 3066.8                   | 2117.9 | 3448.7                   | -800.2  | 2596.1                   | -2838.9 | -703.9                   | -2838.9 | -4003.9                  | -2838.9 |
| 3166.8                   | 2117.9 | 3448.7                   | -900.2  | 2496.1                   | -2838.9 | -803.9                   | -2838.9 | -4103.9                  | -2838.9 |
| 3266.8                   | 2117.9 | 3448.7                   | -1000.2 | 2396.1                   | -2838.9 | -903.9                   | -2838.9 | -4203.9                  | -2838.9 |
| 3366.8                   | 2117.9 | 3448.7                   | -1100.2 | 2296.1                   | -2838.9 | -1003.9                  | -2838.9 | -4303.9                  | -2838.9 |
| 3448.7                   | 2099.8 | 3448.7                   | -1200.2 | 2196.1                   | -2838.9 | -1103.9                  | -2838.9 | -4403.9                  | -2838.9 |
| 3448.7                   | 1999.8 | 3448.7                   | -1300.2 | 2096.1                   | -2838.9 | -1203.9                  | -2838.9 | -4503.9                  | -2838.9 |
| 3448.7                   | 1899.8 | 3448.7                   | -1400.2 | 1996.1                   | -2838.9 | -1303.9                  | -2838.9 | -4603.9                  | -2838.9 |
| 3448.7                   | 1799.8 | 3448.7                   | -1500.2 | 1896.1                   | -2838.9 | -1403.9                  | -2838.9 | -4703.9                  | -2838.9 |
| 3448.7                   | 1699.8 | 3448.7                   | -1600.2 | 1796.1                   | -2838.9 | -1503.9                  | -2838.9 | -4803.9                  | -2838.9 |
| 3448.7                   | 1599.8 | 3448.7                   | -1700.2 | 1696.1                   | -2838.9 | -1603.9                  | -2838.9 | -4903.9                  | -2838.9 |
| 3448.7                   | 1499.8 | 3448.7                   | -1800.2 | 1596.1                   | -2838.9 | -1703.9                  | -2838.9 | -5003.9                  | -2838.9 |
| 3448.7                   | 1399.8 | 3448.7                   | -1900.2 | 1496.1                   | -2838.9 | -1803.9                  | -2838.9 | -5103.9                  | -2838.9 |
| 3448.7                   | 1299.8 | 3448.7                   | -2000.2 | 1396.1                   | -2838.9 | -1903.9                  | -2838.9 | -5203.9                  | -2838.9 |
| 3448.7                   | 1199.8 | 3448.7                   | -2100.2 | 1296.1                   | -2838.9 | -2003.9                  | -2838.9 | -5303.9                  | -2838.9 |
| 3448.7                   | 1099.8 | 3483.0                   | -2191.1 | 1196.1                   | -2838.9 | -2103.9                  | -2838.9 | -5403.9                  | -2838.9 |
| 3448.7                   | 999.8  | 3532.4                   | -2278.0 | 1096.1                   | -2838.9 | -2203.9                  | -2838.9 | -5503.9                  | -2838.9 |
| 3448.7                   | 899.8  | 3581.8                   | -2365.0 | 996.1                    | -2838.9 | -2303.9                  | -2838.9 | -5603.9                  | -2838.9 |
| 3448.7                   | 799.8  | 3631.2                   | -2451.9 | 896.1                    | -2838.9 | -2403.9                  | -2838.9 | -5703.9                  | -2838.9 |
| 3448.7                   | 699.8  | 3680.6                   | -2538.9 | 796.1                    | -2838.9 | -2503.9                  | -2838.9 | -5803.9                  | -2838.9 |
| 3448.7                   | 599.8  | 3730.0                   | -2625.8 | 696.1                    | -2838.9 | -2603.9                  | -2838.9 | -5903.9                  | -2838.9 |
| 3448.7                   | 499.8  | 3779.4                   | -2712.8 | 596.1                    | -2838.9 | -2703.9                  | -2838.9 | -6003.9                  | -2838.9 |
| 3448.7                   | 399.8  | 3828.8                   | -2799.7 | 496.1                    | -2838.9 | -2803.9                  | -2838.9 | -6103.9                  | -2838.9 |

<sup>a</sup> Receptors were selected at 100-meter spacing along property boundary.

<sup>b</sup> Distances are relative to the Cogeneration Boiler B stack.

Note: m = meter

Table C-5. Okeelanta Power, L.P. Property Boundary Receptors<sup>a</sup> Used In the Modeling Analysis (continued)

| Coordinates <sup>b</sup> |         | Coordinates <sup>b</sup> |         |
|--------------------------|---------|--------------------------|---------|
| X                        | Y       | X                        | Y       |
| (m)                      | (m)     | (m)                      | (m)     |
| -6203.9                  | -2838.9 | -9120.5                  | -2368.5 |
| -6303.9                  | -2838.9 | -9140.7                  | -2270.6 |
| -6403.9                  | -2838.9 | -9160.9                  | -2172.6 |
| -6503.9                  | -2838.9 | -9181.0                  | -2074.7 |
| -6603.9                  | -2838.9 | -9201.2                  | -1976.7 |
| -6703.9                  | -2838.9 | -9221.4                  | -1878.8 |
| -6803.9                  | -2838.9 | -9241.5                  | -1780.9 |
| -6903.9                  | -2838.9 | -9261.7                  | -1682.9 |
| -7003.9                  | -2838.9 | -9281.9                  | -1585.0 |
| -7103.9                  | -2838.9 | -9302.0                  | -1487.0 |
| -7203.9                  | -2838.9 | -9322.2                  | -1389.1 |
| -7303.9                  | -2838.9 | -9342.3                  | -1291.1 |
| -7403.9                  | -2838.9 | -9362.5                  | -1193.2 |
| -7503.9                  | -2838.9 | -9382.7                  | -1095.2 |
| -7603.9                  | -2838.9 | -9402.8                  | -997.3  |
| -7703.9                  | -2838.9 | -9423.0                  | -899.3  |
| -7803.9                  | -2838.9 | -9443.2                  | -801.4  |
| -7903.9                  | -2838.9 | -9463.3                  | -703.5  |
| -8003.9                  | -2838.9 | -9483.5                  | -605.5  |
| -8103.9                  | -2838.9 | -9503.7                  | -507.6  |
| -8203.9                  | -2838.9 | -9523.8                  | -409.6  |
| -8303.9                  | -2838.9 | -9544.0                  | -311.7  |
| -8403.9                  | -2838.9 | -9564.2                  | -213.7  |
| -8503.9                  | -2838.9 | -9584.3                  | -115.8  |
| -8603.9                  | -2838.9 | -9604.5                  | -17.8   |
| -8703.9                  | -2838.9 | -9624.7                  | 80.1    |
| -8803.9                  | -2838.9 | -9644.8                  | 178.1   |
| -8903.9                  | -2838.9 | -9665.0                  | 276.0   |
| -9003.9                  | -2838.9 | -9685.2                  | 373.9   |
| -9039.9                  | -2760.3 |                          |         |
| -9060.0                  | -2662.4 |                          |         |
| -9080.2                  | -2564.4 |                          |         |
| -9100.4                  | -2466.5 |                          |         |

<sup>a</sup> Receptors were selected at 100-meter spacing along property boundary.

<sup>b</sup> Distances are relative to the Cogeneration Boiler B stack.

Note: m = meter

Table C-6. OkPLP Building Dimensions Used in the Modeling Analysis

| Structure                                 | Height |       | Length |       | Width |       |
|---|--------|-------|--------|-------|-------|-------|
|   | ft     | m     | ft     | m     | ft    | m     |
| Boiler Building                           | 139    | 42.44 | 207    | 63.12 | 114   | 34.84 |
| Electrostatic Precipitator Building No. 1 | 107    | 32.54 | 50     | 15.24 | 71    | 21.76 |
| Electrostatic Precipitator Building No. 2 | 107    | 32.54 | 50     | 15.24 | 71    | 21.76 |
| Electrostatic Precipitator Building No. 3 | 107    | 32.54 | 50     | 15.24 | 71    | 21.76 |



Table C-7. Summary of Ambient Carbon Monoxide Data for Sites Near Okeelanta Power, L.P.

| City            | Site ID No. | Monitoring Method | Year | Number of Observations | Percent of Data Recovery | Concentration (ug/m3) |                 |            |                 |
|-----------------|-------------|-------------------|------|------------------------|--------------------------|-----------------------|-----------------|------------|-----------------|
|                 |             |                   |      |                        |                          | Max 1-hour            | 2nd High 1-hour | Max 8-hour | 2nd High 8-hour |
| Palm Beach      | 12-099-1004 | Continuous        | 1999 | 8,355                  | 95                       | 4,830                 | 4,600           | 3,795      | 3,220           |
|                 |             |                   | 2000 | 8,631                  | 99                       | 4,370                 | 4,370           | 3,105      | 2,990           |
| West Palm Beach | 12-099-1006 | Continuous        | 1999 | 8,523                  | 97                       | 6,325                 | 5,980           | 4,485      | 3,565           |
|                 |             |                   | 2000 | 7,110                  | 81                       | 7,590                 | 5,635           | 3,335      | 3,105           |

Note: ug/m3 = micrograms per cubic meter  
Source FDEP: Allsum Report; 1999, 2000.

Table C-8. Maximum Impacts Due to Proposed Project and Significant Impact Levels, Okeelanta Power L.P.

| Pollutant       | Averaging Period | Increases in Emissions Due to Project (g/sec) | Predicted Maximum Impact <sup>a</sup> (ug/m <sup>3</sup> ) |        | Significant Impact Levels (ug/m <sup>3</sup> ) |        | Above Significant Impact Levels? |
|-----------------|------------------|---|--|--------|--|--------|----------------------------------|
|                 |                  |   | 1-hour   | 8-hour | 1-hour   | 8-hour |                                  |
| Carbon Monoxide | 1-hour           | 1,662.1                                       | 2,580  | --     | 2,000  | --     | Yes                              |
|                 | 8-hour           | 1,121.6                                       | --   | 610    | --   | 500    | Yes                              |

<sup>a</sup> Based on the following generic maximum impacts (ug/m<sup>3</sup>) predicted with an emission rate of 10 g/sec:

1-hour: 15.52  
8-hour: 5.44

Table C-9. Maximum Predicted CO Impacts for the Proposed Project  
AAQS Screening Analysis, Okeelanta Power, L.P.

| Pollutant/<br>Averaging Time | Concentration<br>(ug/m <sup>3</sup> ) <sup>a</sup> | Receptor Location <sup>b</sup> |                 | Time Period<br>(YYMMDDHH) |
|------------------------------|--|--------------------------------|-----------------|---------------------------|
|                              |  | Direction<br>(degree)          | Distance<br>(m) |                           |
| HSH 8-Hour                   | 756  | 217                            | 3,534           | 87103024                  |
|                              | 575  | 50                             | 5,000           | 88010608                  |
|                              | 563  | 149                            | 3,307           | 89100324                  |
|                              | 580  | 220                            | 4,000           | 90030524                  |
|                              | 632  | 10                             | 5,000           | 91110524                  |
| HSH 1-Hour                   | 2,318  | 20                             | 6,000           | 87121019                  |
|                              | 2,526  | 90                             | 6,000           | 88103021                  |
|                              | 3,016  | 69                             | 3,686           | 89123008                  |
|                              | 2,726  | 166                            | 2,923           | 90012612                  |
|                              | 2,798  | 100                            | 6,000           | 91022822                  |

<sup>a</sup> Based on 5-year meteorological record, West Palm Beach, 1987 to 1991.

<sup>b</sup> Relative to the Cogeneration Boiler B stack.

Note: YYMMDDHH = Year, Month, Day, Hour Ending  
HSH = Highest, Second-Highest

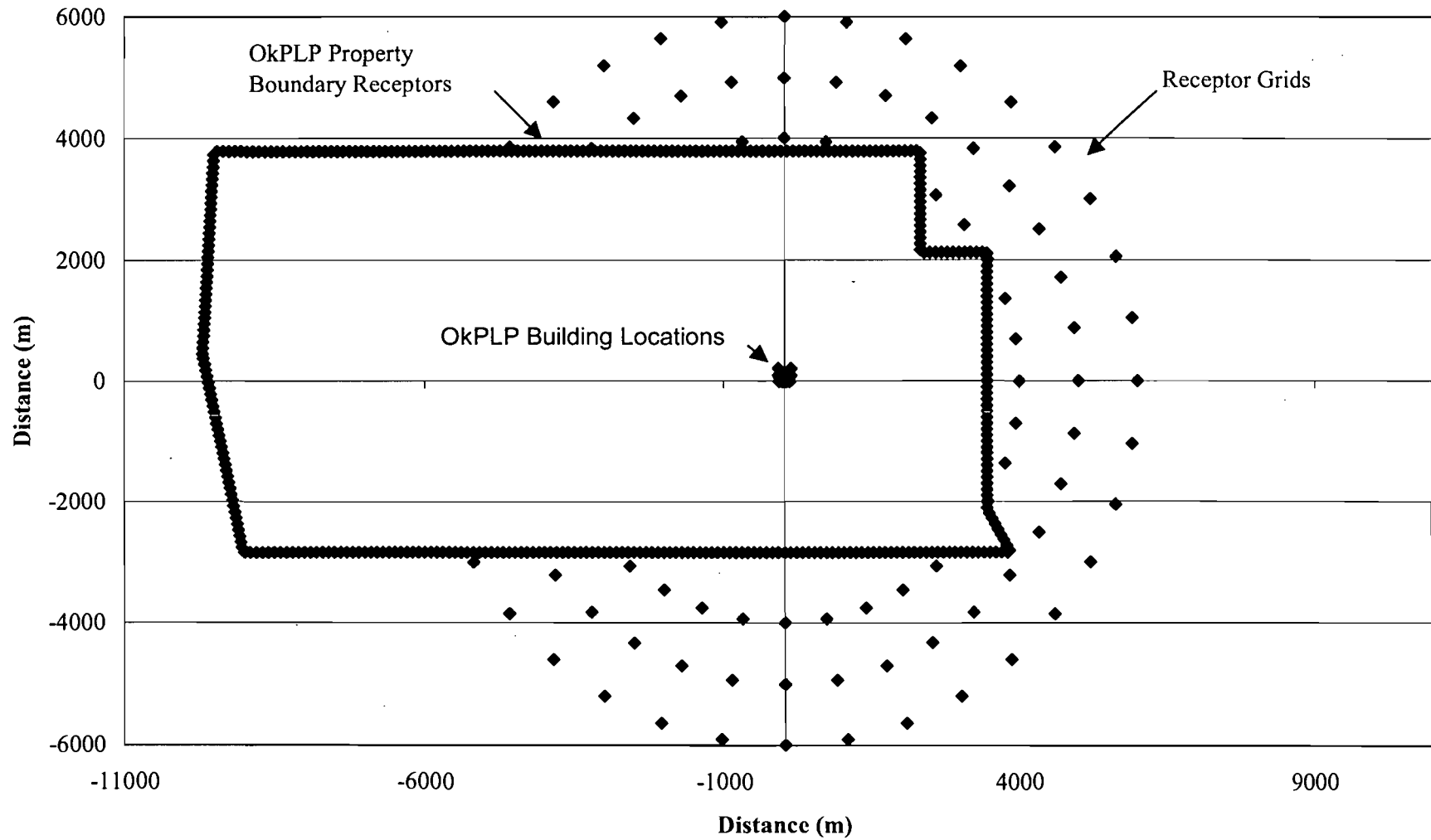
Table C-10. Maximum Predicted CO Concentrations for All Sources Compared to AAQS,  
Refined Analysis, Okeelanta Power, L.P.

| Pollutant/<br>Averaging Time | Concentration (ug/m <sup>3</sup> ) |                    |            | Receptor Location <sup>a</sup> |                 | Time Period<br>(YYMMDDHH) | Florida<br>AAQS<br>(ug/m <sup>3</sup> ) |
|------------------------------|------------------------------------|--------------------|------------|--------------------------------|-----------------|---------------------------|---|
|                              | Total                              | Modeled<br>Sources | Background | Direction<br>(degree)          | Distance<br>(m) |                           |   |
| HSH 8-hour                   | 3,746                              | 756                | 2,990      | 217                            | 3,534           | 87103024                  | 10,000                                  |
| HSH 1-hour                   | 7,436                              | 3,066              | 4,370      | 66                             | 4,000           | 89123008                  | 40,000                                  |
|                              | 7,096                              | 2,726              | 4,370      | 166                            | 2,923           | 90012612                  |   |
|                              | 7,169                              | 2,799              | 4,370      | 101                            | 6,000           | 91022822                  |   |

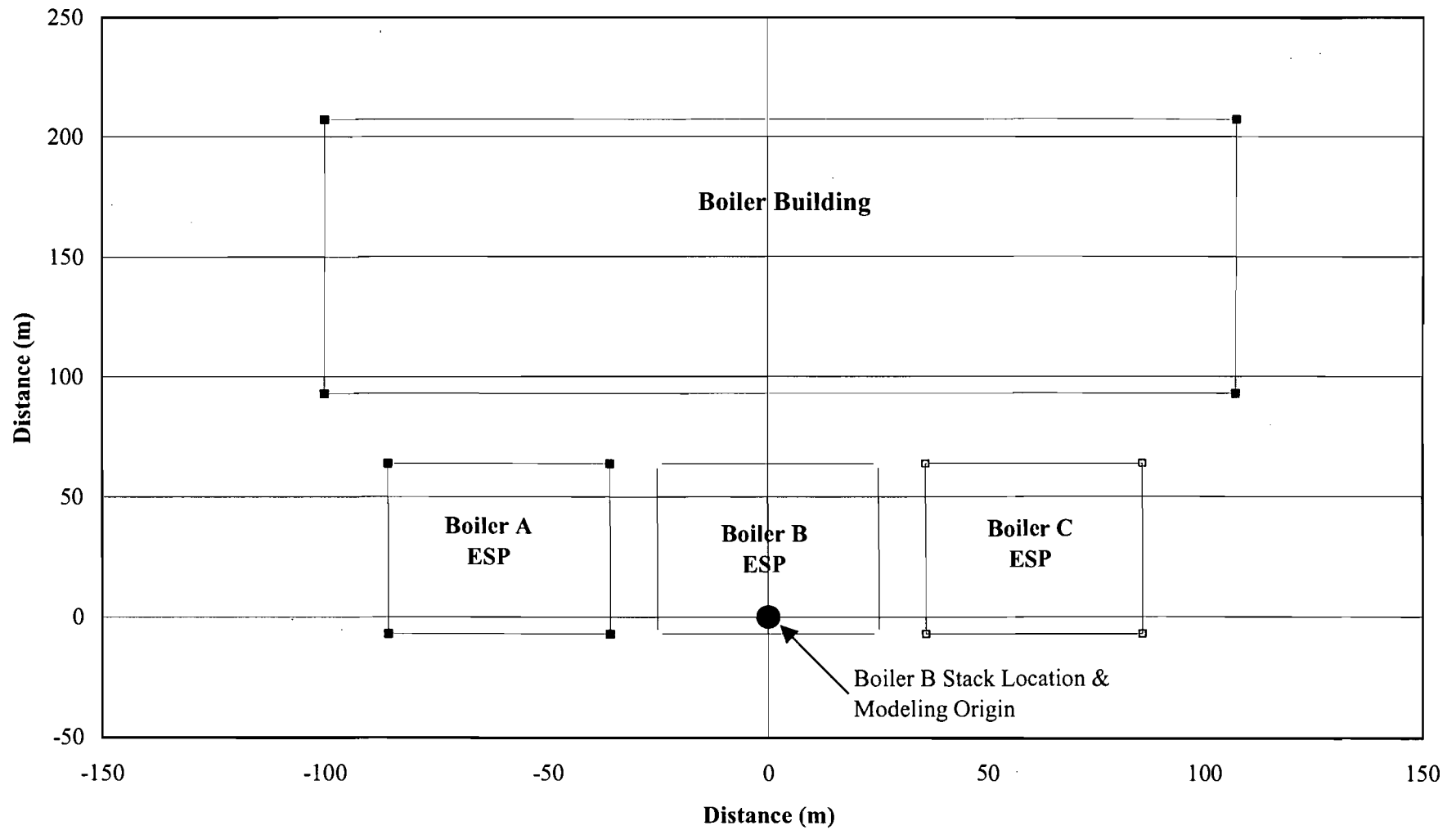
<sup>a</sup> Relative to the Cogeneration Boiler B stack.

Note: YYMMDDHH = Year, Month, Day, Hour Ending  
HSH = Highest, Second-Highest

**Figure C-1. Okeelanta Power, L.P.  
Building, Property Boundary, and Receptor Locations**



**Figure C-2. Okeelanta Power L.P.  
Building Profile and Boiler B Stack Location**



**APPENDIX D**

**MERCURY EMISSION TEST DATA**

Table D-1. Emission Compliance Tests for Mercury Conducted Without Carbon Injection

| Boiler           | Fuel    | Testing Date     | Run No. | Measured Mercury Emissions |          | Allowable Mercury Emissions |          |
|------------------|---------|------------------|---------|----------------------------|----------|-----------------------------|----------|
|                  |         |                  |         | lb/hr                      | lb/MMBtu | lb/hr                       | lb/MMBtu |
| A                | Bagasse | 1/26/99-1/27/99  | 4       | 3.75E-04                   | 4.94E-07 | --                          | --       |
| A                | Bagasse | 1/26/99-1/27/99  | 5       | 2.99E-04                   | 3.71E-07 | --                          | --       |
| A                | Bagasse | 1/26/99-1/27/99  | 6       | 4.11E-04                   | 5.52E-07 | --                          | --       |
| <i>Average =</i> |         |                  |         | 3.62E-04                   | 4.72E-07 | 3.90E-03                    | 5.43E-06 |
| B                | Bagasse | 1/19/99-1/20/99  | 4       | 3.20E-04                   | 3.98E-07 | --                          | --       |
| B                | Bagasse | 1/19/99-1/20/99  | 5       | 2.87E-04                   | 3.48E-07 | --                          | --       |
| B                | Bagasse | 1/19/99-1/20/99  | 6       | 4.22E-04                   | 4.99E-07 | --                          | --       |
| <i>Average =</i> |         |                  |         | 3.43E-04                   | 4.15E-07 | 0.0039                      | 5.43E-06 |
| C                | Bagasse | 12/30/98-1/15/99 | 7       | 5.21E-04                   | 6.16E-07 | --                          | --       |
| C                | Bagasse | 12/30/98-1/15/99 | 8       | 4.42E-04                   | 5.23E-07 | --                          | --       |
| C                | Bagasse | 12/30/98-1/15/99 | 9       | 3.53E-04                   | 4.18E-07 | --                          | --       |
| <i>Average =</i> |         |                  |         | 4.39E-04                   | 5.19E-07 | 0.0039                      | 5.43E-06 |
| A                | Wood    | 1/27/99-1/28/99  | 7       | 7.69E-04                   | 1.12E-06 | --                          | --       |
| A                | Wood    | 1/27/99-1/28/99  | 8       | 1.51E-03                   | 2.30E-06 | --                          | --       |
| A                | Wood    | 1/27/99-1/28/99  | 9       | 7.25E-04                   | 1.02E-06 | --                          | --       |
| <i>Average =</i> |         |                  |         | 1.00E-03                   | 1.48E-06 | 0.0029                      | 4.00E-06 |
| B                | Wood    | 1/20/99-1/21/99  | 7       | 7.16E-04                   | 1.17E-06 | --                          | --       |
| B                | Wood    | 1/20/99-1/21/99  | 8       | 1.47E-03                   | 1.99E-06 | --                          | --       |
| B                | Wood    | 1/20/99-1/21/99  | 9       | 7.24E-04                   | 1.07E-06 | --                          | --       |
| <i>Average =</i> |         |                  |         | 9.70E-04                   | 1.41E-06 | 0.0029                      | 4.00E-06 |
| C                | Wood    | 1/14/99          | 4       | 2.20E-03                   | 2.99E-06 | --                          | --       |
| C                | Wood    | 1/14/99          | 5       | 2.42E-03                   | 3.28E-06 | --                          | --       |
| C                | Wood    | 1/14/99          | 6       | 1.47E-03                   | 1.99E-06 | --                          | --       |
| <i>Average =</i> |         |                  |         | 2.03E-03                   | 2.75E-06 | 0.0029                      | 4.00E-06 |

Note: lb/hr = pounds per hour

lb/MMBtu = pounds per million British thermal units



Table D-2. Calculated Mercury Removal Efficiency for Boiler B at Okeelanta Power Facility

| Test Date | Carbon Injection Setting (Hertz) <sup>a</sup> | Fuel Usage (tons - wet) | Fuel Analysis        |                      |                      |                  | Hg Stack Emissions |           | Calculated Hg Removal Efficiency (%) |
|-----------|---|-------------------------|----------------------|----------------------|----------------------|------------------|--------------------|-----------|--------------------------------------|
|           |   |                         | Hg Conc. (mg/kg,dry) | Moisture Content (%) | Hg Conc. (mg/kg,wet) | Hg Content (lbs) | (lbs/hr)           | (lbs)     |                                      |
| 12/09/96  | 15  | 124.36                  | 0.230                | 26                   | 0.170                | 0.0423           | 1.38E-03           | 2.90E-03  | 93.15                                |
| 12/09/96  | 15  | 100.71                  | 0.064                | 36                   | 0.041                | 0.0083           | 1.34E-03           | 2.75E-03  | 66.70                                |
| 12/10/96  | 15  | 115.37                  | 0.080                | 29                   | 0.057                | 0.0131           | 1.54E-03           | 3.18E-03  | 75.72                                |
| 12/10/96  | 30  | 128.05                  | 0.075                | 34                   | 0.050                | 0.0127           | 1.08E-03           | 2.23E-03  | 82.39                                |
| 12/10/96  | 30  | 123.50                  | 0.015 <sup>b</sup>   | 25                   | 0.011                | 0.0028           | 1.04E-03           | 2.31E-03  | 17.04                                |
| 12/10/96  | 30  | 121.76                  | 0.049                | 30                   | 0.034                | 0.0084           | 9.90E-04           | 2.03E-03  | 75.70                                |
| 12/11/96  | 45  | 104.48                  | 0.043                | 28                   | 0.031                | 0.0065           | 1.03E-03           | 2.09E-03  | 67.63                                |
| 12/12/96  | 45  | 100.24                  | 0.055                | 26                   | 0.041                | 0.0082           | 1.35E-03           | 2.75E-03  | 66.36                                |
| 12/12/96  | 45  | 99.54                   | 0.066                | 28                   | 0.048                | 0.0095           | 1.24E-03           | 2.52E-03  | 73.35                                |
|           |   |                         |                      |                      |                      |                  |                    | Average = | 68.67                                |

<sup>a</sup> Hertz settings represent approximately the following:

15 Hertz - 25% of max. injection rate or 7 lb/hr

30 Hertz - 50% of max. injection rate or 16 lb/hr

45 Hertz - 75% of max. injection rate or 23 lb/hr

<sup>b</sup> Below detectable level. Value represents one-half the detectable level.

Note: Conc. = concentration.

mg/kg = milligrams per kilogram.

**Golder Associates Inc.**

6241 NW 23rd Street, Suite 500  
Gainesville, FL 32653-1500  
Telephone (352) 336-5600  
Fax (352) 336-6603



May 24, 2001

0037584

Florida Department of Environmental Protection  
Bureau of Air Regulation  
2600 Blair Stone Road  
Tallahassee, FL 32399-2400

**RECEIVED**

**MAY 29 2001**

**BUREAU OF AIR REGULATION**

Attention: Mr. Jeff Koerner, P.E.

RE: OKEELANTA POWER COGENERATION FACILITY  
ARMS FACILITY ID NO. 0990332  
PROJECT NO. 0990332-014-AC/PSD-FL-196M  
APPLICATION TO MODIFY CO AND SO<sub>2</sub> EMISSIONS STANDARDS

Dear Mr. Koerner:

The purpose of this letter is to request an additional 15-day extension to the time in which to respond to the Department's letter dated January 25, 2001, on the above referenced project. Okeelanta Power Limited Partnership (OkPLP) and its consultant, Golder Associates Inc., is in the process of completing required dispersion modeling analysis and cannot complete such analysis prior to the May 25, 2001, deadline. Additional time is needed to complete the dispersion modeling. Therefore, OkPLP and Golder request until June 8, 2001, in which to submit responses to the Department's January 25 letter.

Thank you for your consideration of this request. Please call if there are any questions.

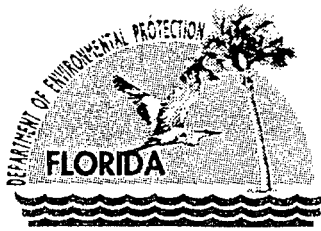
Sincerely,

GOLDER ASSOCIATES INC.

David A. Buff, P.E., Q.E.P.  
Principal Engineer  
Florida P.E. #19011

DAB/jkw

cc: Gus Cepero  
James Meriwether  
David Dee  
Bill Tarr



Jeb Bush  
Governor

# Department of Environmental Protection

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

David B. Struhs  
Secretary

April 27, 2001

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Ricardo Lima, Vice President and General Manager  
Okeelanta Power Limited Partnership  
8001 U.S. Highway 27 South  
South Bay, FL 33493

Re: Request for Extension of Time to Submit Additional Information.  
Project No. 0990332-014-AC (PSD-FL-196M)  
Okeelanta Power L.P. Cogeneration Plant  
Request to Modify CO and SO<sub>2</sub> Emissions Standards

Dear Mr. Lima:

On April 23, 2001, we received a letter from Golder Associates requesting a 30-day extension to provide the additional information requested by the Department in a letter dated January 25, 2001. The Department approves this request and the new deadline for submittal of this information is May 26, 2001. The letter also stated that the extension of time was needed because the Department had recently identified *additional* questions regarding short-term CO and SO<sub>2</sub> emissions. This was not the case. The Department simply confirmed the original questions and comments made in the January 25<sup>th</sup> request for additional information. If you have any comments regarding this matter, please contact me at 850/921-9536.

Sincerely,

Jeffery F. Koerner, P.E.  
New Source Review Section

AAL/jfk

cc: Mr. Ricardo Lima, Okeelanta Power  
Mr. James Meriwether, Okeelanta Power  
Mr. David Buff, Golder Associates  
Mr. David Knowles, SD  
Mr. Jin Stormer, PBCHD  
Mr. Gregg Worley, EPA Region 4  
Mr. John Bunyak, NPS

"More Protection, Less Process"

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- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:  
 Mr. Ricardo Lima  
 Vice President & Gen. Mgr.  
 Okeelanta Power Limited Partnership  
 8001 U.S. Highway 27 South  
 South Bay, FL 33493

2. Article Number (Copy from service label)  
 7099 3400 0000 1450 2613

PS Form 3811, July 1999

Domestic Return Receipt

102595-00-M-0952

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Received by (Please Print Clearly) B. Date of Delivery  
 B. McPhee 4/30/94

C. Signature  Agent  
 X *B. McPhee*  Addressee

D. Is delivery address different from item 1?  Yes  
 If YES, enter delivery address below:  No

P.O. Box 86  
 S. Bay 71 33493

3. Service Type  
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 Registered  Return Receipt for Merchandise  
 Insured Mail  C.O.D.

4. Restricted Delivery? (Extra Fee)  Yes

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Article Sent To:  
 Ricardo Lima

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|--|-----------|
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| Restricted Delivery Fee (Endorsement Required) |           |
| <b>Total Postage &amp; Fees</b>                | <b>\$</b> |

Okeelanta  
 Power LP  
 Postmark  
 Here

Name (Please Print Clearly) (to be completed by mailer)  
 Ricardo Lima  
 Street, Apt. No., or PO Box No.  
 8001 US Highway 27 South  
 City, State, ZIP+4  
 South Bay, FL 33493

**Golder Associates Inc.**

6241 NW 23rd Street, Suite 500  
Gainesville, FL 32653-1500  
Telephone (352) 336-5600  
Fax (352) 336-6603



APR 23 2001

April 23, 2001

BUREAU OF AIR REGULATION

0037584

Florida Department of Environmental Protection  
Bureau of Air Regulation  
2600 Blair Stone Road  
Tallahassee, FL 32399-2400

Attention: Mr. Jeff Koerner, P.E.

RE: Okeelanta Power Cogeneration Facility  
ARMS Facility ID No. 0990332  
Project No. 0990332-014-AC/PSD-FL-196M  
Application to Modify CO and SO<sub>2</sub> Emissions Standards

Dear Mr. Koerner:

The purpose of this letter is to request a 30-day extension to the time in which to respond to the Department's letter dated January 25, 2001, on the above referenced project. Okeelanta Power Limited Partnership (OkPLP) had anticipated responding to the Department's letter by April 25, 2001, but recently additional questions have been identified by the Department regarding short term CO and SO<sub>2</sub> emissions. Additional time is needed to resolve these questions, including performing additional dispersion modeling. We therefore request until May 25, 2001, in which to submit responses to the Department's January 25 letter.

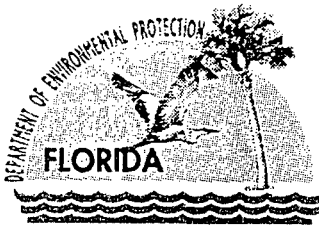
Thank you for your consideration of this request. Please call if there are any questions.

Sincerely,  
GOLDER ASSOCIATES INC.

  
David A. Buff, P.E., Q.E.P.  
Principal Engineer  
Florida P.E. #19011

cc: Gus Cepero  
James Meriwether  
David Dee  
Bill Tarr

P:\Projects\2000\0037\0037584a OkPLP\L042301.doc



Jeb Bush  
Governor

# Department of Environmental Protection

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

David B. Struhs  
Secretary

April 3, 2001

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Ricardo Lima, Vice President and General Manager  
Okeelanta Power Limited Partnership  
8001 U.S. Highway 27 South  
South Bay, FL 33493

Re: **Reminder of Request for Additional Information**  
Project No. 0990332-014-AC (PSD-FL-196M)  
Okeelanta Power L.P. Cogeneration Plant  
Application to Modify CO and SO<sub>2</sub> Emissions Standards

Dear Mr. Lima:

On January 2, 2001, the Department received your application requesting changes to the CO and SO<sub>2</sub> emissions standards for the biomass boilers at Okeelanta's cogeneration plant located 6 miles south of South Bay on U.S. Highway 27. The application was incomplete. In a letter dated January 25, 2001, the Department requested you to submit additional information that would allow continued processing of your application. To date, we have not received the requested additional information. Rule 62-4.055(1) of the Florida Administrative Code requires the following:

*"The applicant shall have ninety days after the Department mails a timely request for additional information to submit that information to the Department. If an applicant requires more than ninety days in which to respond to a request for additional information, the applicant may notify the Department in writing of the circumstances, at which time the application shall be held in active status for one additional period of up to ninety days. Additional extensions shall be granted for good cause shown by the applicant. A showing that the applicant is making a diligent effort to obtain the requested additional information shall constitute good cause. Failure of an applicant to provide the timely requested information by the applicable deadline shall result in denial of the application."*

It has been more than 60 days since our last request for additional information (copy attached). You are reminded that the permit processing time clock has stopped for this project and that we will not continue our review until we receive the additional information. If you require a period of time in addition to the 90 days allowed by rule, please submit a written request indicating the amount of time necessary. If you fail to provide the additional information or request additional time to submit the additional information, the Department will deny your application.

If you have any questions regarding this matter, please call me at 850/921-9536.

Sincerely,

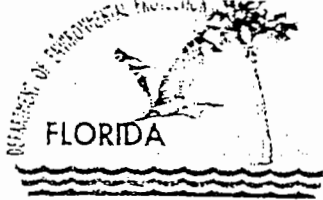
Jeffery F. Koerner, P.E.  
New Source Review Section

AAL/jfk

cc: Mr. Ricardo Lima, Okeelanta Power  
Mr. James Meriwether, Okeelanta Power  
Mr. David Buff, Golder Associates  
Mr. Ron Blackburn, SD

Mr. Darrel Graziani, PBCHD  
Mr. Gregg Worley, EPA Region 4  
Mr. John Bunyak, NPS

"More Protection, Less Process"



# Department of Environmental Protection

Best Available Copy

Jeb Bush  
Governor

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

David B. Struhs  
Secretary

January 25, 2001

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Ricardo Lima, Vice President and General Manager  
Okeelanta Power Limited Partnership  
8001 U.S. Highway 27 South  
South Bay, FL 33493

Re: Request for Additional Information  
Project No. 0990332-014-AC (PSD-FL-196M)  
Okeelanta Power L.P. Cogeneration Plant  
Application to Modify CO and SO<sub>2</sub> Emissions Standards

Dear Mr. Lima:

On January 2, 2001 the Department received an application requesting changes to the CO and SO<sub>2</sub> emissions standards for the biomass boilers at Okeelanta's cogeneration plant located 6 miles south of South Bay on U.S. Highway 27. The application is incomplete. In order to continue processing your application, the Department will need the additional information requested below. Should your response to any of the below items require new calculations, please submit the new calculations, assumptions, reference material and appropriate revised pages of the application form.

1. For each boiler during the period of 05/01/99 through 12/31/00, please provide the following information in a tabled format. Provide data for each day during a one-month period representative of operations before the violations, during the violations, and after the violations.
  - a. 24-hour averages for CO, NO<sub>x</sub>, and SO<sub>2</sub> emissions. If possible, also provide line chart representing the 24-hour averages of each pollutant (on the same chart) over the entire period separately for each boiler.
  - b. Daily average of tons of bagasse fired, tons of wood fired, gallons of oil fired, and the bagasse/wood firing ratio.
  - c. The daily average steam production, power production, stack gas moisture, stack gas oxygen content; and the F-factor used.In detail, please describe the method of calculating the heat input for use in the compliance averages. What is the thermal efficiency of each boiler? Has the thermal efficiency been tested for each boiler?
2. Okeelanta speculates that the increased CO emissions result from a high moisture content of the biomass fuel due to increased rainfall. The data presented does not appear to establish any conclusive correlation between rainfall and CO emissions. However, does Okeelanta maintain a dry source of biomass fuel or attempt to prevent some biomass from being rained upon? Has Okeelanta made any provisions to attempt drying the fuel before firing in the cogeneration boilers? Please provide a list of actions taken by Okeelanta to adjust operations in response to gradually increasing CO emissions. Has Okeelanta researched changes in equipment or processes that could be implemented to correct the elevated levels of CO emissions?
3. From the information provided, the samples of bagasse appear to be within the range of sulfur contents stated in the initial application. Most samples of the wood materials show sulfur contents within the range stated in the initial application. However, several samples of the wood materials show sulfur contents as much as two to three times higher than expected. Please describe the plan for sampling the biomass fuels and analyzing for the sulfur content. When a sample indicates an unusually high sulfur content, what provisions does Okeelanta make to separate the shipment and proportionally blend with lower sulfur biomass to comply with the SO<sub>2</sub> standards? What other methods are used or could be used to adjust operations for biomass fuels detected to have high sulfur contents? Has Okeelanta evaluated the option of using a lime/activated carbon product for additional SO<sub>2</sub> control?

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The data presented does not conclusively show that the addition of dust collectors resulted in higher SO<sub>2</sub> emissions due to less SO<sub>2</sub> adsorption. Please sample the bottom ash from a cogeneration boiler for both sulfur and unburned carbon. Compare the results with those from a cogeneration boiler prior to the dust collectors (or a sugar mill bagasse boiler).

4. The following table is presented to document the original CO standards, subsequent changes, and current request:

Table 6. Summary of CO Standards

| Year    | Average  | Biomass       | Oil           | Coal          |
|---------|----------|---------------|---------------|---------------|
| 1993    | 8-hour   | 0.35 lb/mmBTU | 0.2 lb/mmBTU  | 0.2 lb/mmBTU  |
| 1997    | 24-hour  | 0.35 lb/mmBTU | 0.35 lb/mmBTU | 0.35 lb/mmBTU |
| 1999    | 30-day   | 0.35 lb/mmBTU | 0.35 lb/mmBTU | 0.35 lb/mmBTU |
| Request | 12-month | 0.35 lb/mmBTU | 0.35 lb/mmBTU | 0.35 lb/mmBTU |

- a. The Department notes that the Ambient Air Quality Standards (AAQS) are defined for CO in terms of 1-hour and 8-hour averages. The initial Ambient Air Quality Analysis was based on maximum emissions rates reflecting these averaging periods. Please review the available operating data and provide the expected maximum CO emission rates based on the 1-hour and 8-hour averages from the CO CEMS. Provide a summary of the CO data and describe the methods used to select the expected maximum CO emission rates.
  - b. Please provide a tabled comparison of the CO emission rates used in the initial Ambient Air Quality Analysis versus the expected maximum CO emission rates. If the expected maximum CO emission rates are higher, please revise the PSD significant impact analysis and the AAQS analysis accordingly. Please provide a report of the revised modeling effort as well as the modeling files for review.
  - c. If additional modeling is necessary and indicates a significant impact, the Department is considering new short-term CO limits. If revised modeling indicates an insignificant impact, the Department is considering providing the short-term CO emission rates in the revised permit for informational purposes.
5. The following table is presented to document the original SO<sub>2</sub> standards, subsequent changes, and the current request:

Table 6. Summary of SO<sub>2</sub> Standards

| Year    | Average | Biomass   | Oil           | Coal         |
|---------|---------|---|---------------|--------------|
| 1993    | 3-hour  | NA  | NA            | 1.2 lb/mmBTU |
|         | 24-hour | 0.10 lb/mmBTU                                   | 0.05 lb/mmBTU | 1.2 lb/mmBTU |
|         | 30-day  | 0.02 lb/mmBTU                                   | NA            | 1.2 lb/mmBTU |
|         | Annual  | 0.02 lb/mmBTU                                   | NA            | 1.2 lb/mmBTU |
| 1997    | 3-hour  | NA  | NA            | 1.2 lb/mmBTU |
|         | 24-hour | 0.10 lb/mmBTU                                   | 0.05 lb/mmBTU | 1.2 lb/mmBTU |
|         | 30-day  | 0.02 lb/mmBTU (Bagasse)<br>0.05 lb/mmBTU (Wood) | NA            | 1.2 lb/mmBTU |
|         | Annual  | 0.02 lb/mmBTU (Bagasse)<br>0.05 lb/mmBTU (Wood) | NA            | 1.2 lb/mmBTU |
| Request | 3-hour  | NA  | NA            | 1.2 lb/mmBTU |
|         | 24-hour | 0.20 lb/mmBTU                                   | 0.05 lb/mmBTU | 1.2 lb/mmBTU |
|         | 30-day  | 0.10 lb/mmBTU                                   | NA            | 1.2 lb/mmBTU |
|         | Annual  | 0.10 lb/mmBTU                                   | NA            | 1.2 lb/mmBTU |

- a. The Department notes that the Ambient Air Quality Standards (AAQS) are defined for SO<sub>2</sub> in terms of 3-hour, 24-hour, and annual averages. The initial Ambient Air Quality Analysis was based on maximum emissions rates reflecting these averaging periods. Please review the available operating data and provide the expected maximum SO<sub>2</sub> emission rates based on the 3-hour, 24-hour, and annual averages from the SO<sub>2</sub> CEMS. Provide a summary of the SO<sub>2</sub> data and describe the methods used to select the expected maximum SO<sub>2</sub> emission rates.
- b. Please provide a tabled comparison of the modeled SO<sub>2</sub> emission rates used for the original PSD Air Quality Analysis versus the expected maximum (and requested) SO<sub>2</sub> emission rates. If the expected maximum (or

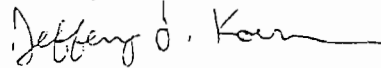


requested) SO2 emission rates are higher, please revise the PSD significant impact analysis, Class I and Class I increment consumption, and the AAQS analysis accordingly. Please provide a report of the revised modeling effort as well as the modeling files for review.

- c. If additional modeling is necessary and indicates a significant impact, the Department is considering new short-term SO2 limits. If revised modeling indicates an insignificant impact, the Department is considering providing the short-term SO2 emission rates in the revised permit for informational purposes.
6. As the Department has pointed out during previous permitting actions, the initial PSD air construction permit authorized the installation of coal handling facilities and the firing of low sulfur coal. However, the coal handling facilities were never constructed and coal has never been fired at this plant. Okeelanta Power L.P. must obtain new authorization from the Department (through a permit modification) to fire any coal in the future. At the very least, such a request shall evaluate current "Best Available Control Technologies" for each significant pollutant. Also, it is inappropriate to use the "potential emissions" for a fuel (coal) that is no longer authorized and has never been fired as emissions decreases to offset increases in actual emissions from the proposed project. Please revise the request accordingly.
7. The Department intends to update the PSD permit to incorporate all of the previous revisions. Please include any other requests for amendments at this time.

The Department will resume processing your application after receipt of the requested information. Rule 62-4.050(3), F.A.C. requires that all applications for a Department permit must be certified by a professional engineer registered in the State of Florida. This requirement also applies to responses to Department requests for additional information of an engineering nature. Material changes to the application should also be accompanied by a new certification statement by the authorized representative or responsible official. Permit applicants are advised that Rule 62-4.055(1), F.A.C. now requires applicants to respond to requests for information within 90 days. If there are any questions, please call me at 850/414-7268.

Sincerely,



Jeffery F. Koerner, P.E.  
New Source Review Section

AAL/jfk

cc: Mr. Ricardo Lima, Okeelanta Power  
Mr. James Meriwether, Okeelanta Power  
Mr. David Buff, Golder Associates  
Mr. David Knowles, SD  
Mr. Darrel Graziani, PBCHD  
Mr. Gregg Worley, EPA Region 4  
Mr. John Bunyak, NPS

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- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Ricardo Lima  
 Vice President & Gen. Mgr.  
 Okeelanta Power Limited Partnership  
 8001 US Highway 27 South  
 South Bay, FL 33493

2. Article Number (Copy from service label)  
 7099 3400 0000 1449 2440

PS Form 3811, July 1999

Domestic Return Receipt

102595-00-M-0952

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C. Signature

- Agent  
 Addressee

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If YES, enter delivery address below:  No

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Okeelanta Power

Postmark  
Here

Name (Please Print Clearly) (to be completed by mailer)

Mr. Ricardo Lima

Street, Apt. No. or PO Box No.

8001 US Highway 27 S.

City, State, ZIP+4

South Bay, FL 33493

PS Form 3800, July 1999

See Reverse for Instructions

7099 3400 0000 1449 2440

**RECEIVED**

JAN 02 2001

BUREAU OF AIR REGULATION

**APPLICATION TO MODIFY  
CO/SO<sub>2</sub> EMISSION LIMITS**

OKEELANTA POWER L.P.  
SOUTH BAY, FLORIDA

Prepared by:



6241 NW 23rd Street  
Gainesville, Florida  
32653-1500

Prepared for:

Okeelanta Power L.P.  
21250 U.S. Highway 27  
South Bay, Florida  
33493

December 2000  
0037584Y/F1

**DISTRIBUTION:**

6 Copies - FDEP

4 Copies - Okeelanta

1 Copy - Golder Associates Inc.

**PERMIT APPLICATION FORM**



# Department of Environmental Protection

## Division of Air Resources Management

### APPLICATION FOR AIR PERMIT - TITLE V SOURCE

See Instructions for Form No. 62-210.900(1)

#### I. APPLICATION INFORMATION

##### Identification of Facility

|   |  |
|---|--|
| 1. Facility Owner/Company Name:<br><b>Okeelanta Power L.P.</b>  |  |
| 2. Site Name:<br><b>Okeelanta Power L.P.</b>  |  |
| 3. Facility Identification Number: <b>0990332</b>   | <input type="checkbox"/> Unknown   |
| 4. Facility Location: <b>6 miles south of South Bay on US 27</b><br>Street Address or Other Locator: <b>8001 U.S. Highway 27 South</b><br>City: <b>South Bay</b> County: <b>Palm Beach</b> Zip Code: <b>33493</b> |  |
| 5. Relocatable Facility?<br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No   | 6. Existing Permitted Facility?<br><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |

##### Application Contact

|  |  |
|--|--|
| 1. Name and Title of Application Contact:<br><b>James Meriwether, Environmental and Safety Manager</b>   |  |
| 2. Application Contact Mailing Address:<br>Organization/Firm: <b>Okeelanta Power L.P.</b><br>Street Address: <b>8001 U.S. Highway 27 South</b><br>City: <b>South Bay</b> State: <b>FL</b> Zip Code: <b>33493</b> |  |
| 3. Application Contact Telephone Numbers:<br>Telephone: <b>( 561 ) 993 - 1003</b> Fax: <b>( 561 ) 996 - 6596</b>   |  |

##### Application Processing Information (DEP Use)

|                                    |                       |
|------------------------------------|-----------------------|
| 1. Date of Receipt of Application: | <i>1-2-01</i>         |
| 2. Permit Number:                  | <i>0990332-014-AC</i> |
| 3. PSD Number (if applicable):     | <i>PSD-FL-196M</i>    |
| 4. Siting Number (if applicable):  |                       |

**Purpose of Application**

**Air Operation Permit Application**

This Application for Air Permit is submitted to obtain: (Check one)

- Initial Title V air operation permit for an existing facility which is classified as a Title V source.
- Initial Title V air operation permit for a facility which, upon start up of one or more newly constructed or modified emissions units addressed in this application, would become classified as a Title V source.  
Current construction permit number: \_\_\_\_\_
- Title V air operation permit revision to address one or more newly constructed or modified emissions units addressed in this application.  
Current construction permit number: \_\_\_\_\_  
Operation permit number to be revised: \_\_\_\_\_
- Title V air operation permit revision or administrative correction to address one or more proposed new or modified emissions units and to be processed concurrently with the air construction permit application. (Also check Air Construction Permit Application below.)  
Operation permit number to be revised/corrected: \_\_\_\_\_
- Title V air operation permit revision for reasons other than construction or modification of an emissions unit. Give reason for the revision; e.g., to comply with a new applicable requirement or to request approval of an "Early Reductions" proposal.  
Operation permit number to be revised: \_\_\_\_\_  
Reason for revision: \_\_\_\_\_

**Air Construction Permit Application**

This Application for Air Permit is submitted to obtain: (Check one)

- Air construction permit to construct or modify one or more emissions units.
- Air construction permit to make federally enforceable an assumed restriction on the potential emissions of one or more existing, permitted emissions units.
- Air construction permit for one or more existing, but unpermitted, emissions units.

**Owner/Authorized Representative or Responsible Official**

|  |
|--|
| 1. Name and Title of Owner/Authorized Representative or Responsible Official:<br><b>Ricardo Lima, Vice President - General Manager</b>   |
| 2. Owner/Authorized Representative or Responsible Official Mailing Address:<br>Organization/Firm: <b>Okeelanta Power L.P.</b><br>Street Address: <b>8001 U.S. Highway 27 South</b><br>City: <b>South Bay</b> State: <b>FL</b> Zip Code: <b>33493</b>   |
| 3. Owner/Authorized Representative or Responsible Official Telephone Numbers:<br>Telephone: <b>( 561 ) 996 - 9072</b> Fax: <b>( 561 ) 992 - 7326</b>   |
| 4. Owner/Authorized Representative or Responsible Official Statement:<br><i>I, the undersigned, am the owner or authorized representative* (check here <input checked="" type="checkbox"/>, if so) or the responsible official (check here <input type="checkbox"/>, if so) of the Title V source addressed in this application, whichever is applicable. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof. I understand that a permit, if granted by the Department, cannot be transferred without authorization from the Department, and I will promptly notify the Department upon sale or legal transfer of any permitted emissions unit.</i><br><br>Signature <u><i>R. Lima</i></u> Date <u>12/27/00</u> |

\* Attach letter of authorization if not currently on file.

**Professional Engineer Certification**

|   |
|---|
| 1. Professional Engineer Name: <b>David Buff</b><br>Registration Number: <b>19011</b>   |
| 2. Professional Engineer Mailing Address:<br>Organization/Firm: <b>Golder Associates Inc.</b><br>Street Address: <b>6241 NW 23rd Street, Suite 500</b><br>City: <b>Gainesville</b> State: <b>FL</b> Zip Code: <b>32653-1500</b> |
| 3. Professional Engineer Telephone Numbers:<br>Telephone: <b>( 352 ) 336 - 5600</b> Fax: <b>( 352 ) 336 - 6603</b>  |

4. Professional Engineer Statement:

*I, the undersigned, hereby certify, except as particularly noted herein\*, that:*

*(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this Application for Air Permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and*

*(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.*

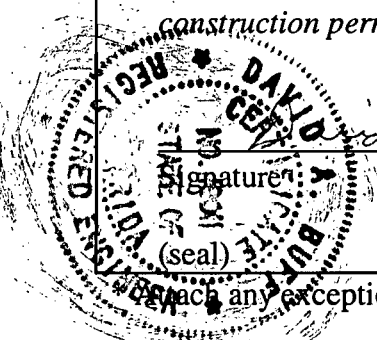
*If the purpose of this application is to obtain a Title V source air operation permit (check here [  ], if so), I further certify that each emissions unit described in this Application for Air Permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance schedule is submitted with this application.*

*If the purpose of this application is to obtain an air construction permit for one or more proposed new or modified emissions units (check here [], if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.*

*If the purpose of this application is to obtain an initial air operation permit or operation permit revision for one or more newly constructed or modified emissions units (check here [  ], if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.*

*David A. Buff*  
\_\_\_\_\_  
Signature

*12/21/00*  
\_\_\_\_\_  
Date



*attach any exception to certification statement.*





**Construction/Modification Information**

1. Description of Proposed Project or Alterations:

**Increase in SO<sub>2</sub> emission limit for biomass and change in averaging time for CO emission limit for cogeneration boilers.**

2. Projected or Actual Date of Commencement of Construction: **01 Jan 2001**

3. Projected Date of Completion of Construction: **01 Aug 2001**

**Application Comment**

[Empty box for Application Comment]

## II. FACILITY INFORMATION

### A. GENERAL FACILITY INFORMATION

#### Facility Location and Type

|  |                                      |  |                                    |
|--|--------------------------------------|--|------------------------------------|
| 1. Facility UTM Coordinates:<br>Zone: <b>17</b> East (km): <b>524.90</b> North (km): <b>2940.10</b>  |                                      |  |                                    |
| 2. Facility Latitude/Longitude:<br>Latitude (DD/MM/SS): / / Longitude (DD/MM/SS): / /  |                                      |  |                                    |
| 3. Governmental Facility Code:<br><b>0</b>   | 4. Facility Status Code:<br><b>A</b> | 5. Facility Major Group SIC Code:<br><b>49</b> | 6. Facility SIC(s):<br><b>4911</b> |
| 7. Facility Comment (limit to 500 characters):<br><br><b>The Okeelanta Power L.P. cogeneration facility consists of three boilers and all operations necessary to generate steam for the Okeelanta Corporation sugar mill, as well as generate electricity for sale to the grid.</b> |                                      |  |                                    |

#### Facility Contact

|   |  |  |  |
|---|--|--|--|
| 1. Name and Title of Facility Contact:<br><b>James Meriwether, Environmental and Safety Manager</b>   |  |  |  |
| 2. Facility Contact Mailing Address:<br>Organization/Firm: <b>Okeelanta Power L.P.</b><br>Street Address: <b>8001 U.S. Highway 27 South</b><br>City: <b>South Bay</b> State: <b>FL</b> Zip Code: <b>33493</b> |  |  |  |
| 3. Facility Contact Telephone Numbers:<br>Telephone: <b>( 561 ) 993 - 1003</b> Fax: <b>( 561 ) 996 - 6596</b>   |  |  |  |

**Facility Regulatory Classifications**

**Check all that apply:**

|   |                                  |
|---|----------------------------------|
| 1. <input type="checkbox"/> Small Business Stationary Source?   | <input type="checkbox"/> Unknown |
| 2. <input checked="" type="checkbox"/> Major Source of Pollutants Other than Hazardous Air Pollutants (HAPs)?   |                                  |
| 3. <input type="checkbox"/> Synthetic Minor Source of Pollutants Other than HAPs?                               |                                  |
| 4. <input checked="" type="checkbox"/> Major Source of Hazardous Air Pollutants (HAPs)?                         |                                  |
| 5. <input type="checkbox"/> Synthetic Minor Source of HAPs?   |                                  |
| 6. <input checked="" type="checkbox"/> One or More Emissions Units Subject to NSPS?                             |                                  |
| 7. <input type="checkbox"/> One or More Emission Units Subject to NESHAP?                                       |                                  |
| 8. <input type="checkbox"/> Title V Source by EPA Designation?  |                                  |
| 9. Facility Regulatory Classifications Comment (limit to 200 characters):<br><br><b>See Attachment OC-FI-A9</b> |                                  |

**List of Applicable Regulations**

|   |  |
|---|--|
| <b>Only those rules, regulations, and ordinances specifically identified herein apply to this facility.</b> |  |
| <b>See attached Title V Core List, effective 3/25/97.</b>   |  |
|   |  |
|   |  |
|   |  |
|   |  |
|   |  |
|   |  |
|   |  |
|   |  |
|   |  |

# Title V Core List

Effective:03/25/97

[**Note:** The Title V Core List is intended to simplify the completion of the "List of Applicable Regulations" that apply facility-wide (see Subsection II.B. of DEP Form No. 62-210.900(1), Application for Air Permit - Long Form. The Title V Core List is a list of rules to which all Title V Sources are presumptively subject. The Title V Core List may be referenced in its entirety, or with specific exceptions. The Department may periodically update the Title V Core List.

Requirements that apply to emissions units must be identified in Subsection III.B. of DEP Form No. 62-210.900(1), Application for Air Permit - Long Form.

Applicants must identify all "applicable requirements" in order to claim the "permit shield" described at Rule 62-213.460, F.A.C.]

## **Federal:** (description)

- 40 CFR 61: National Emission Standards for Hazardous Air Pollutants (NESHAP)
- 40 CFR 61, Subpart M: NESHAP for Asbestos.
- 40 CFR 64, Compliance Assurance Monitoring.
- 40 CFR 82: Protection of Stratospheric Ozone.
- 40 CFR 82, Subpart B: Servicing of Motor Vehicle Air Conditioners (MVAC).
- 40 CFR 82, Subpart F: Recycling and Emissions Reduction.

## **State:** (description)

### **CHAPTER 62-4, F.A.C.: PERMITS, effective 10-16-95**

- 62-4.030, F.A.C.: General Prohibition.
- 62-4.040, F.A.C.: Exemptions.
- 62-4.050, F.A.C.: Procedure to Obtain Permits; Application
- 62-4.060, F.A.C.: Consultation.
- 62-4.070, F.A.C.: Standards for Issuing or Denying Permits; Issuance; Denial.
- 62-4.080, F.A.C.: Modification of Permit Conditions.
- 62-4.090, F.A.C.: Renewals.
- 62-4.100, F.A.C.: Suspension and Revocation.
- 62-4.110, F.A.C.: Financial Responsibility.
- 62-4.120, F.A.C.: Transfer of Permits.
- 62-4.130, F.A.C.: Plant Operation - Problems.
- 62-4.150, F.A.C.: Review
- 62-4.160, F.A.C.: Permit Conditions.
- 62-4.210, F.A.C.: Construction Permits.
- 62-4.220, F.A.C.: Operation Permit for New Sources.

### **CHAPTER 62-103, F.A.C.: RULES OF ADMINISTRATIVE PROCEDURE, effective 12-31-95**

- 62-103.150, F.A.C.: Public Notice of Application and Proposed Agency Action.
- 62-103.155, F.A.C.: Petition for Administrative Hearing; Waiver of Right to Administrative Proceeding

## Title V Core List

Effective:03/25/97

### CHAPTER 62-210, F.A.C.: STATIONARY SOURCES - GENERAL REQUIREMENTS, effective 03-21-96

62-210.300, F.A.C.: Permits Required.

62-210.300(1), F.A.C.: Air Construction Permits.

62-210.300(2), F.A.C.: Air Operation Permits.

62-210.300(3), F.A.C.: Exemptions.

62-210.300(3)(a), F.A.C.: Full Exemptions.

62-210.300(3)(b), F.A.C.: Temporary Exemption.

62-210.300(5), F.A.C.: Notification of Startup.

62-210.300(6), F.A.C.: Emissions Unit Reclassification.

62-210.350, F.A.C.: Public Notice and Comment.

62-210.350(3), F.A.C.: Additional Public Notice Requirements for Sources Subject  
to Operation Permits for Title V Sources.

62-210.360, F.A.C.: Administrative Permit Corrections.

62-210.370(3), F.A.C.: Annual Operating Report for Air Pollutant Emitting Facility.

62-210.650, F.A.C.: Circumvention.

62-210.900, F.A.C.: Forms and Instructions.

62-210.900(1) Application for Air Permit - Long Form, Form and Instructions.

62-210.900(5) Annual Operating Report for Air Pollutant Emitting Facility, Form  
and Instructions.

### CHAPTER 62-213, F.A.C.: OPERATION PERMITS FOR MAJOR SOURCES OF AIR POLLUTION, effective 03-20-96

62-213.205, F.A.C.: Annual Emissions Fee.

62-213.400, F.A.C.: Permits and Permit Revisions Required.

62-213.410, F.A.C.: Changes Without Permit Revision.

62-213.412, F.A.C.: Immediate Implementation Pending Revision Process.

62-213.420, F.A.C.: Permit Applications.

62-213.430, F.A.C.: Permit Issuance, Renewal, and Revision.

62-213.440, F.A.C.: Permit Content.

62-213.460, F.A.C.: Permit Shield.

62-213.900, F.A.C.: Forms and Instructions.

62-213.900(1) Major Air Pollution Source Annual Emissions Fee Form, Form and  
Instructions.

## Title V Core List

Effective:03/25/97

**CHAPTER 62-256, F.A.C.: OPEN BURNING AND FROST PROTECTION FIRES, effective 11-30-94**

**CHAPTER 62-257, F.A.C.: ASBESTOS NOTIFICATION AND FEE, effective 03/24/96**

**CHAPTER 62-281, F.A.C.: MOTOR VEHICLE AIR CONDITIONING REFRIGERANT RECOVERY AND RECYCLING, effective 03-07-96**

**CHAPTER 62-296, F.A.C.: STATIONARY SOURCES - EMISSION STANDARDS, effective 03-13-96**

62-296.320(2), F.A.C.: Objectionable Odor Prohibited.

62-296.320(3), F.A.C.: Industrial, Commercial, and Municipal Open Burning Prohibited

62-296.320(4)(c), F.A.C.: Unconfined Emissions of Particulate Matter

## B. FACILITY POLLUTANTS

### List of Pollutants Emitted

| 1. Pollutant Emitted | 2. Pollutant Classif. | 3. Requested Emissions Cap |           | 4. Basis for Emissions Cap | 5. Pollutant Comment                |
|----------------------|-----------------------|----------------------------|-----------|----------------------------|-------------------------------------|
|                      |                       | lb/hour                    | tons/year |                            |                                     |
| PM                   | A                     |                            |           |                            | Particulate Matter-Total            |
| PM <sub>10</sub>     | A                     |                            |           |                            | Particulate Matter-PM <sub>10</sub> |
| SO <sub>2</sub>      | A                     |                            |           |                            | Sulfur Dioxide                      |
| NO <sub>x</sub>      | A                     |                            |           |                            | Nitrogen Oxides                     |
| CO                   | A                     |                            |           |                            | Carbon Monoxides                    |
| VOC                  | A                     |                            |           |                            | Volatile Organic Compounds          |
| PB                   | B                     |                            |           |                            | Lead                                |
| H114                 | B                     |                            |           |                            | Mercury Compounds                   |
| H021                 | B                     |                            |           |                            | Beryllium Compounds                 |
| FL                   | B                     |                            |           |                            | Fluorides                           |
| SAM                  | B                     |                            |           |                            | Sulfuric Acid Mist                  |
| HAPs                 | A                     |                            |           |                            | Total Hazardous Air Pollutants      |
|                      |                       |                            |           |                            |                                     |
|                      |                       |                            |           |                            |                                     |
|                      |                       |                            |           |                            |                                     |
|                      |                       |                            |           |                            |                                     |
|                      |                       |                            |           |                            |                                     |





**Additional Supplemental Requirements for Title V Air Operation Permit Applications**

|   |
|---|
| 8. List of Proposed Insignificant Activities:<br><input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable   |
| 9. List of Equipment/Activities Regulated under Title VI:<br><input type="checkbox"/> Attached, Document ID: _____<br><input type="checkbox"/> Equipment/Activities On site but Not Required to be Individually Listed<br><input checked="" type="checkbox"/> Not Applicable  |
| 10. Alternative Methods of Operation:<br><input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable   |
| 11. Alternative Modes of Operation (Emissions Trading):<br><input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable   |
| 12. Identification of Additional Applicable Requirements:<br><input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable   |
| 13. Risk Management Plan Verification:<br><input type="checkbox"/> Plan previously submitted to Chemical Emergency Preparedness and Prevention Office (CEPPO). Verification of submittal attached (Document ID: _____) or previously submitted to DEP (Date and DEP Office: _____)<br><input type="checkbox"/> Plan to be submitted to CEPPO (Date required: _____)<br><input checked="" type="checkbox"/> Not Applicable |
| 14. Compliance Report and Plan:<br><input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable   |
| 15. Compliance Certification (Hard-copy Required):<br><input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable  |

**ATTACHMENT OC-FI-A9**  
**FACILITY REGULATORY CLASSIFICATION COMMENT**

**ATTACHMENT OC-FI-A9**  
**FACILITY REGULATORY CLASSIFICATION COMMENT**

At this time, it is unclear whether Okeelanta Corporation or Okeelanta Power L.P. should be classified as major for HAPs. Okeelanta Power L.P. has no emissions test data indicating significant HAP emissions from its boilers. Emissions test data from the Pulp and Paper Industry indicates that there are HAPs emissions from wood-fired boilers. However, these emissions data may not be representative of Okeelanta Power HAP emissions. In addition, recent sugar industry test data indicates that there are HAPs emissions from sugar industry bagasse fired boilers. However, Okeelanta Power believes the HAPs emissions from its boilers are much lower than the emissions from the older boilers in the sugar industry. Further, Okeelanta Corporation is currently not operating its sugar mill boilers, as steam is being supplied by Okeelanta Power.

**ATTACHMENT OC-FI-C1**  
**AREA MAP SHOWING FACILITY LOCATION**

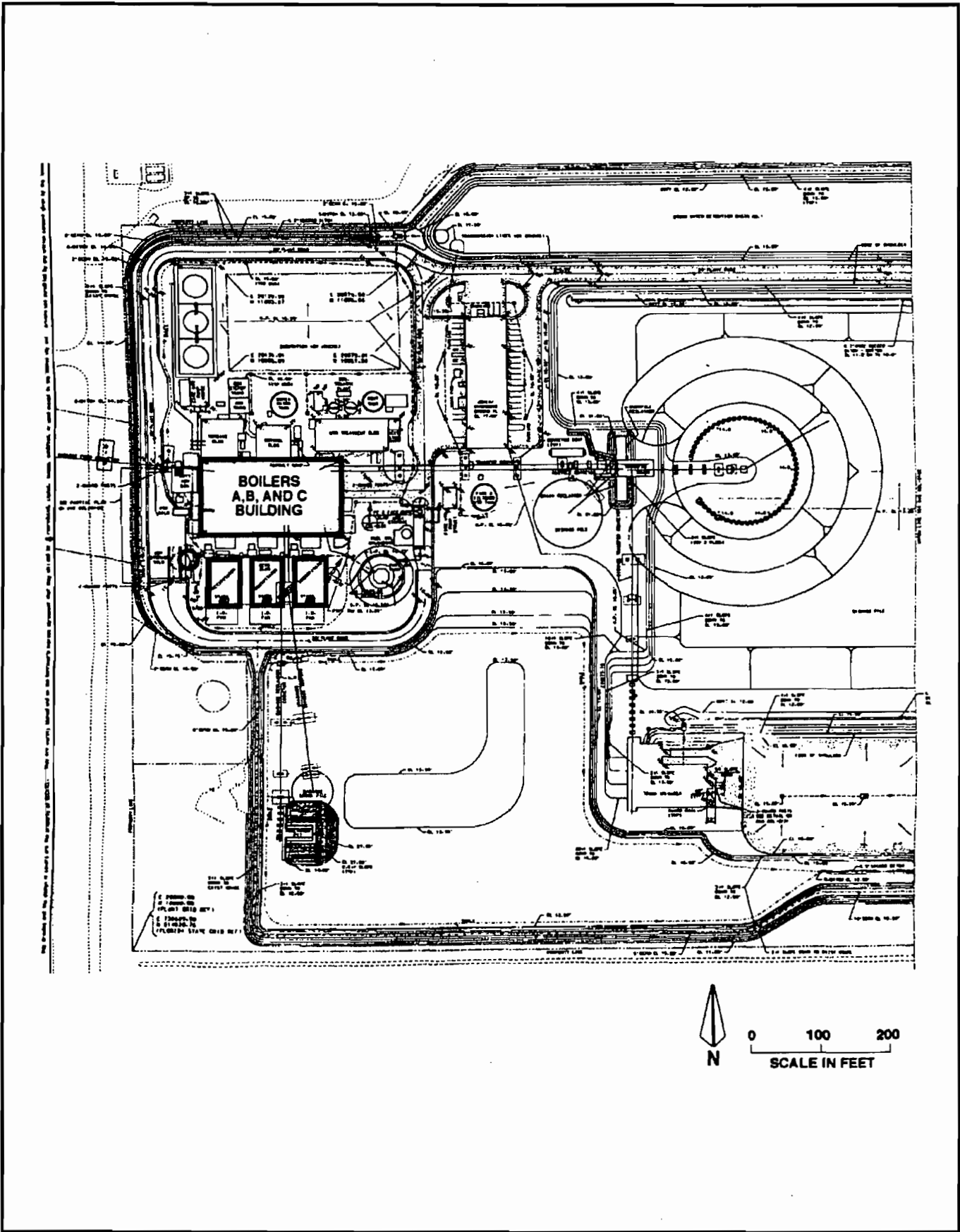


**Attachment OC-FI-C1**  
 Location of Okeelanta Power L.P.

Source: Golder Associates Inc., 2000



**ATTACHMENT OC-FI-C2**  
**FACILITY PLOT PLAN**



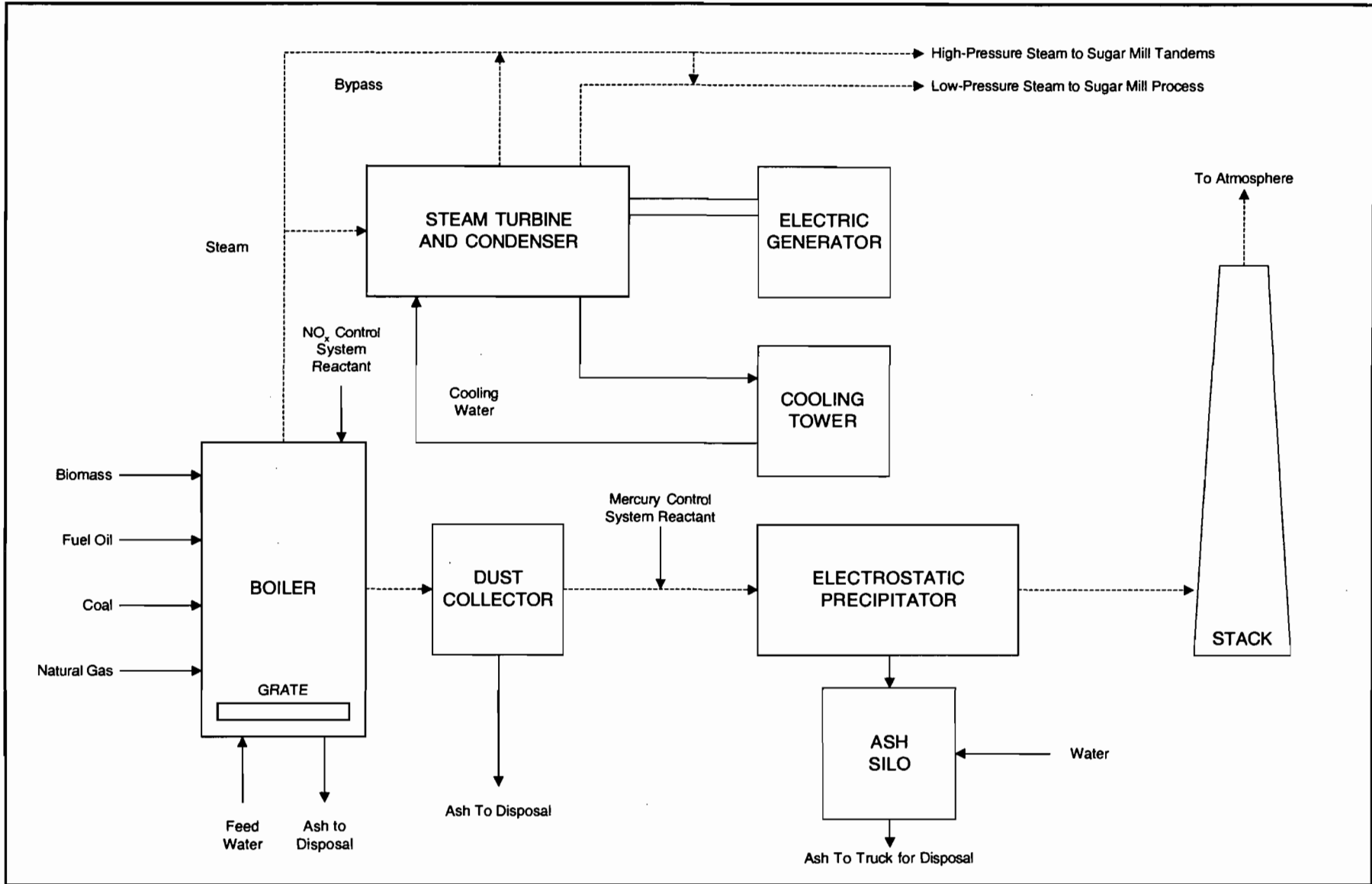
Attachment OC-FI-C2  
 Plot Plan of Okeelanta L.P. Facility

Source: Bechtel, 1996; Golder, 2000.





**ATTACHMENT OC-FI-C3  
PROCESS FLOW DIAGRAM**



Attachment OC-FI-C3  
 Simplified Flow Diagram  
 Okeelanta Power Cogeneration Facility  
 South Bay, FL

**Process Flow Legend**  
 Solid/Liquid ———→  
 Steam - - - - -→

Filename: 0037584Y/F1/WP/OC-FI-C3.VSD (Page 2)

Date: 12/08/00



**III. EMISSIONS UNIT INFORMATION**

A separate Emissions Unit Information Section (including subsections A through J as required) must be completed for each emissions unit addressed in this Application for Air Permit. If submitting the application form in hard copy, indicate, in the space provided at the top of each page, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application.

**A. GENERAL EMISSIONS UNIT INFORMATION  
(All Emissions Units)**

**Emissions Unit Description and Status**

|   |                                 |   |   |
|---|---------------------------------|---|---|
| <p>1. Type of Emissions Unit Addressed in This Section: (Check one)</p> <p><input checked="" type="checkbox"/> This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).</p> <p><input type="checkbox"/> This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.</p> <p><input type="checkbox"/> This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.</p> |                                 |   |   |
| <p>2. Regulated or Unregulated Emissions Unit? (Check one)</p> <p><input checked="" type="checkbox"/> The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.</p> <p><input type="checkbox"/> The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.</p>  |                                 |   |   |
| <p>3. Description of Emissions Unit Addressed in This Section (limit to 60 characters):</p> <p style="padding-left: 20px;"><b>Cogen Boiler A fired by Biomass/No. 2 oil/coal/natural gas</b></p>  |                                 |   |   |
| <p>4. Emissions Unit Identification Number: <span style="float: right;"><input type="checkbox"/> No ID</span></p> <p style="padding-left: 20px;">ID: <b>030</b> <span style="float: right;"><input type="checkbox"/> ID Unknown</span></p>  |                                 |   |   |
| <p>5. Emissions Unit Status Code:</p> <p style="padding-left: 20px;"><b>A</b></p>   | <p>6. Initial Startup Date:</p> | <p>7. Emissions Unit Major Group SIC Code:</p> <p style="padding-left: 20px;"><b>49</b></p> | <p>8. Acid Rain Unit? <span style="float: right;"><input type="checkbox"/></span></p> |
| <p>9. Emissions Unit Comment: (Limit to 500 Characters)</p> <p style="padding-left: 20px;"><b>74.9 MW gross generating capacity for entire facility.</b></p>  |                                 |   |   |

**Emissions Unit Control Equipment**

1. Control Equipment/Method Description (Limit to 200 characters per device or method):

**ESP - Electrostatic Precipitator – High Efficiency**

**Selective Non-catalytic Reduction for NO<sub>x</sub>**

**Activated Carbon Adsorption**

**Multiple Cyclone w/o Fly Ash Reinjection**

2. Control Device or Method Code(s): **10, 107, 48, 76**

**Emissions Unit Details**

|                                      |               |
|--------------------------------------|---------------|
| 1. Package Unit:                     |               |
| Manufacturer:                        | Model Number: |
| 2. Generator Nameplate Rating:       | <b>75 MW</b>  |
| 3. Incinerator Information:          |               |
| Dwell Temperature:                   | °F            |
| Dwell Time:                          | seconds       |
| Incinerator Afterburner Temperature: | °F            |

**B. EMISSIONS UNIT CAPACITY INFORMATION  
(Regulated Emissions Units Only)**

**Emissions Unit Operating Capacity and Schedule**

|   |  |                  |
|---|--|------------------|
| 1. Maximum Heat Input Rate:                                       | 715 mmBtu/hr   |                  |
| 2. Maximum Incineration Rate:                                     | lb/hr  | tons/day         |
| 3. Maximum Process or Throughput Rate:                            |  |                  |
| 4. Maximum Production Rate:                                       |  |                  |
| 5. Requested Maximum Operating Schedule:                          |  |                  |
|   | 24 hours/day   | 7 days/week      |
|   | 52 weeks/year  | 8,760 hours/year |
| 6. Operating Capacity/Schedule Comment (limit to 200 characters): |  |                  |
|   | <p><b>Maximum heat input rates: Biomass - 715 MMBtu/hr; No. 2 Fuel Oil - 490 MMBtu/hr; Coal - 490 MMBtu/hr; Natural Gas - 605 MMBtu/hr</b></p> |                  |



## EU ID 030 : Cogen Boiler No. 1 Rule Applicability for Okeelanta Power L.P.

| APPLIC STAT    | RULE DESCRIP  | RULE NUMBER       | RULE TITLE  | RATIONALE FOR NON-APPLICABILITY                                     |
|----------------|---------------|-------------------|---|---|
| APPLICABLE     | 60 Subpart A  | 40CFR60.1         | Subpart A – General Provisions  |   |
| APPLICABLE     | 60 Subpart A  | 40CFR60.7         | Notification and Record Keeping   |   |
| APPLICABLE     | 60 Subpart A  | 40CFR60.8         | Performance Testing   |   |
| APPLICABLE     | 60 Subpart A  | 40CFR60.11        | Compliance with standards and maintenance requirements.   |   |
| APPLICABLE     | 60 Subpart A  | 40CFR60.12        | Circumvention.  |   |
| APPLICABLE     | 60 Subpart A  | 40CFR60.13        | Monitoring requirements.  |   |
| APPLICABLE     | 60 Subpart A  | 40CFR60.19        | General notification and reporting requirements   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.40a       | Subpart Da - NSPS for Electric Utility Units for which construction commenced after Sept. 18, 1978. |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.42a       | Standard for particulate matter   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.43a       | Standard for sulfur dioxide.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.43a(a)    | Standard for sulfur dioxide.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.43a(b)    | Standard for sulfur dioxide.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.43a(d)(2) | Standard for sulfur dioxide.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.43a(g)    | Standard for sulfur dioxide.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.43a(h)    | Standard for sulfur dioxide.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.44a       | Standard for nitrogen oxides  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.44a(a)    | Standard for nitrogen oxides  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.44a(c)    | Standard for nitrogen oxides  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.46a       | Compliance provisions.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.46a(a)    | Compliance provisions.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.46a(b)    | Compliance provisions.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.46a(c)    | Compliance provisions.  |   |
| NON-APPLICABLE | 60 Subpart Da | 40CFR60.46a(d)    | Compliance provisions.  | Cogen Boiler No. 1 does not have a flue gas desulfurization system. |
| APPLICABLE     | 60 Subpart Da | 40CFR60.46a(e)    | Compliance provisions.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.46a(f)    | Compliance provisions.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.46a(g)    | Compliance provisions.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.46a(h)    | Compliance provisions.  |   |
| NON-APPLICABLE | 60 Subpart Da | 40CFR60.46a(i)    | Compliance provisions.  | Cogen Boiler No. 1 has not been modified after July 7, 1997.        |
| APPLICABLE     | 60 Subpart Da | 40CFR60.47a       | Emission monitoring   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.47a(a)    | Emission monitoring   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.47a(b)(2) | Emission monitoring   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.47a(b)(3) | Emission monitoring   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.47a(c)(1) | Emission monitoring   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.47a(d)    | Emission monitoring   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.47a(e)    | Emission monitoring   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.47a(f)    | Emission monitoring   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.47a(g)    | Emission monitoring   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.47a(h)    | Emission monitoring   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.47a(i)    | Emission monitoring   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.47a(j)    | Emission monitoring   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.48a       | Compliance determination procedures and methods.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.48a(a)    | Compliance determination procedures and methods.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.48a(b)    | Compliance determination procedures and methods.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.48a(c)    | Compliance determination procedures and methods.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.48a(d)    | Compliance determination procedures and methods.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.48a(e)    | Compliance determination procedures and methods.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.49a       | Reporting requirements  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.49a(a)    | Reporting requirements  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.49a(b)    | Reporting requirements  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.49a(c)    | Reporting requirements  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.49a(d)    | Reporting requirements  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.49a(f)    | Reporting requirements  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.49a(g)    | Reporting requirements  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.49a(h)    | Reporting requirements  |   |

## EU ID 030 : Cogen Boiler No. 1 Rule Applicability for Okeelanta Power L.P.

| APPLIC STAT    | RULE DESCRIP  | RULE NUMBER        | RULE TITLE   | RATIONALE FOR NON-APPLICABILITY   |
|----------------|---------------|--------------------|--|---|
| APPLICABLE     | 60 Subpart Da | 40CFR60.49a(i)     | Reporting requirements   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.49a(j)     | Reporting requirements   |   |
| APPLICABLE     | 60 Subpart Ea | 40CFR60.50a(d)     | Standards of performance for municipal waste combustors  |   |
| APPLICABLE     | 60 Subpart Ea | 40CFR60.50b(j)     | Standards of performance for municipal waste combustors  |   |
| APPLICABLE     | 62-204        | 62-204.800(7)2.    | NSPS Subpart Da adopted by reference.  |   |
| APPLICABLE     | 62-296 <      | 62-296             | STATIONARY SOURCES - EMISSION STANDARDS  |   |
| APPLICABLE     | 62-296 <      | 62-296.405(2)      | Fossil Fuel Steam Generators with more than 250 million Btu per Hour Heat Input.                     |   |
| NON-APPLICABLE | 62-296 <      | 62-296.406         | Fossil Fuel Steam Generators with less than 250 Million Btu per Hour Heat Input, New and Existing Em | Cogen Boiler No. 1 has a heat input of > 250 MMBtu/hr.  |
| NON-APPLICABLE | 62-296 <      | 62-296.410         | Carbonaceous Fuel Burning Equipment.   | Not more stringent or different than NSPS.  |
| APPLICABLE     | 62-296 >      | 62-296.500         | Reasonably Available Control Technology (RACT) - Volatile Organic Compounds (VOC) and Nitrogen Oxide |   |
| APPLICABLE     | 62-296 >      | 62-296.500(2)(a)   | Reasonably Available Control Technology (RACT) - Volatile Organic Compounds (VOC) and Nitrogen Oxide |   |
| APPLICABLE     | 62-296 >      | 62-296.500(2)(c)   | Reasonably Available Control Technology (RACT) - Volatile Organic Compounds (VOC) and Nitrogen Oxide |   |
| APPLICABLE     | 62-296 >      | 62-296.570         | Reasonably Available Control Technology (RACT) - Requirements for Major VOC- and NOx-Emitting Facili |   |
| APPLICABLE     | 62-296 >      | 62-296.570(1)      | Applicability.   |   |
| APPLICABLE     | 62-296 >      | 62-296.570(1)(a)   | Applicability.   |   |
| APPLICABLE     | 62-296 >      | 62-296.570(2)      | Compliance Requirements.   |   |
| APPLICABLE     | 62-296 >      | 62-296.570(3)      | Operation Permit Requirements.   |   |
| APPLICABLE     | 62-296 >      | 62-296.570(4)      | Operation Permit Requirements.   |   |
| APPLICABLE     | 62-296 >      | 62-296.570(4)(a)   | Operation Permit Requirements.   |   |
| APPLICABLE     | 62-296 >      | 62-296.570(4)(b)6. | Operation Permit Requirements.   |   |
| APPLICABLE     | 62-296 >      | 62-296.570(4)(c)   | Operation Permit Requirements.   |   |
| APPLICABLE     | 62-296 >      | 62-296.620         |  |   |
| NON-APPLICABLE | 62-296 >      | 62-296.700         | Reasonably Available Control Technology (RACT) Particulate Matter.                                   | Okeelanta Power is located in Palm Beach County, which is not a nonattainment or maintenance area for particulate matter. |
| NON-APPLICABLE | 62-296 >      | 62-296.702         | Fossil Fuel Steam Generators.  | Okeelanta Power is located in Palm Beach County, which is not a nonattainment or maintenance area for particulate matter. |
| NON-APPLICABLE | 62-296 >      | 62-296.703         | Carbonaceous Fuel Burners.   | Okeelanta Power is located in Palm Beach County, which is not a nonattainment or maintenance area for particulate matter. |
| APPLICABLE     | 62-297        | 62-297             | STATIONARY SOURCES - EMISSIONS MONITORING  |   |
| APPLICABLE     | 62-297        | 62-297.310         | General Compliance Test Requirements.  |   |
| APPLICABLE     | 62-297        | 62-297.401         | Compliance Test Methods.   |   |
| APPLICABLE     | 62-297        | 62-297.401(1)(a)   | EPA Method 1 - Sample and Velocity Traverses for Stationary sources - 40 CFR 60 Appendix A.          |   |
| APPLICABLE     | 62-297        | 62-297.401(10)     | EPA Method 10 - Determination of Carbon Monoxide Emissions from Stationary Sources - 40 CFR 60 Appen |   |
| APPLICABLE     | 62-297        | 62-297.401(12)     | EPA Method 12 - Determination of Inorganic Lead Emissions from Stationary Sources - 40 CFR 60 Append |   |
| APPLICABLE     | 62-297        | 62-297.401(13)     | EPA Methods 13A and 13B.   |   |
| APPLICABLE     | 62-297        | 62-297.401(18)     | EPA Method 18 - Measurement of Caseous Organic Compound Emissions by Gas Chromatography - 40 CFR 60  |   |
| APPLICABLE     | 62-297        | 62-297.401(19)     | EPA Method 19 - Determination of Sulfur Dioxide Removal Efficiency and Particulate, Sulfur Dioxide a |   |
| APPLICABLE     | 62-297        | 62-297.401(2)      | EPA Method 2 - Determination of Stack Gas Velocity and Volumetric Flow Rate - 40 CFR 60 Appendix A.  |   |



## EU ID 030 : Cogen Boiler No. 1 Rule Applicability for Okeelanta Power L.P.

| APPLIC STAT | RULE DESCRIP | RULE NUMBER      | RULE TITLE  | RATIONALE FOR NON-APPLICABILITY |
|-------------|--------------|------------------|---|---------------------------------|
| APPLICABLE  | 62-297       | 62-297.401(25)   | EPA Method 25 - Determination of Total Gaseous Nonmethane Organic Emissions as Carbon - 40 CFR 60 Ap  |                                 |
| APPLICABLE  | 62-297       | 62-297.401(3)    | EPA Method 3 - Gas Analysis for Carbon Dioxide, Oxygen, Excess Air, and Dry Molecular Weight - 40 CF  |                                 |
| APPLICABLE  | 62-297       | 62-297.401(32)   | EPA Method 101 - Determination of Particulate and Gaseous Mercury Emissions from Chlor-Alkali Plants  |                                 |
| APPLICABLE  | 62-297       | 62-297.401(35)   | EPA Method 104 - Determination of Beryllium Emissions from Stationary Sources - 40 CFR 61 Appendix B  |                                 |
| APPLICABLE  | 62-297       | 62-297.401(39)   | EPA Method 108 - Determination of Particulate and Gaseous Arsenic Emissions - 40 CFR 61 Appendix B.   |                                 |
| APPLICABLE  | 62-297       | 62-297.401(4)    | EPA Method 4 - Determination of Moisture Content in Stack Gases - 40 CFR 60 Appendix A.               |                                 |
| APPLICABLE  | 62-297       | 62-297.401(41)   | EPA Method 201 - Determination of PM10 Emissions (Exhaust Gas Recycle Procedure) - 40 CFR 51 Appendi  |                                 |
| APPLICABLE  | 62-297       | 62-297.401(5)    | EPA Method 5 - Determination of Particulate Emissions from Stationary Sources - 40 CFR 60 Appendix A  |                                 |
| APPLICABLE  | 62-297       | 62-297.401(6)    | EPA Method 6 - Determination of Sulfur Dioxide Emissions from Stationary Sources - 40 CFR 60 Appendi  |                                 |
| APPLICABLE  | 62-297       | 62-297.401(6)(c) | EPA Method 6C - Determination of Sulfur Dioxide Emissions from Stationary Sources - 40 CFR 60 Appendi |                                 |
| APPLICABLE  | 62-297       | 62-297.401(7)    | EPA Method 7 - Determination of Nitrogen Oxide Emissions from Stationary Sources - 40 CFR 60 Appendi  |                                 |
| APPLICABLE  | 62-297       | 62-297.401(7)(e) | EPA Method 7E - Determination of Nitrogen Oxide Emissions from Stationary Sources - 40 CFR 60 Appendi |                                 |
| APPLICABLE  | 62-297       | 62-297.401(8)    | EPA Method 8 - Determination of Sulfuric Acid Mist and Sulfur Dioxide Emissions from Stationary Sour  |                                 |
| APPLICABLE  | 62-297       | 62-297.401(9)    | EPA Test Method 9   |                                 |

**D. EMISSION POINT (STACK/VENT) INFORMATION**  
**(Regulated Emissions Units Only)**

**Emission Point Description and Type**

|  |  |  |  |
|--|--|--|--|
| 1. Identification of Point on Plot Plan or Flow Diagram? <b>BLR A</b>  |  | 2. Emission Point Type Code:<br><b>1</b>           |  |
| 3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking (limit to 100 characters per point): |  |  |  |
| 4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:                                    |  |  |  |
| 5. Discharge Type Code:<br><b>V</b>  | 6. Stack Height:<br><b>199 feet</b>                    | 7. Exit Diameter:<br><b>10.0 feet</b>              |  |
| 8. Exit Temperature:<br><b>295 °F</b>  | 9. Actual Volumetric Flow Rate:<br><b>246,000 acfm</b> | 10. Water Vapor:<br><b>%</b>                       |  |
| 11. Maximum Dry Standard Flow Rate:<br><b>dscfm</b>  |  | 12. Nonstack Emission Point Height:<br><b>feet</b> |  |
| 13. Emission Point UTM Coordinates:<br>Zone: East (km): North (km):  |  |  |  |
| 14. Emission Point Comment (limit to 200 characters):<br><br><b>Stack parameters based on biomass firing.</b>          |  |  |  |

**E. SEGMENT (PROCESS/FUEL) INFORMATION**  
(All Emissions Units)

**Segment Description and Rate:** Segment 1 of 5

|  |   |   |
|--|---|---|
| 1. Segment Description (Process/Fuel Type) (limit to 500 characters):<br><br><b>Electric Utility Boiler - Bagasse</b>  |   |   |
| 2. Source Classification Code (SCC):<br><b>10101101</b>  |   | 3. SCC Units:<br><b>Tons Burned (all solid fuels)</b> |
| 4. Maximum Hourly Rate:<br><b>97.865</b>   | 5. Maximum Annual Rate:<br><b>857,295</b> | 6. Estimated Annual Activity Factor:                  |
| 7. Maximum % Sulfur:<br><b>0.05</b>  | 8. Maximum % Ash:<br><b>1.0</b>           | 9. Million Btu per SCC Unit:<br><b>7.306</b>          |
| 10. Segment Comment (limit to 200 characters):<br><br><b>Total biomass all three boilers = 1,436,945 TPY based on 46.1% heat input from wood and 53.9% from bagasse.</b> |   |   |

**Segment Description and Rate:** Segment 2 of 5

|  |   |   |
|--|---|---|
| 1. Segment Description (Process/Fuel Type ) (limit to 500 characters):<br><br><b>Electric Utility Boiler - Wood Fired Boiler</b>   |   |   |
| 2. Source Classification Code (SCC):<br><b>10100903</b>  |   | 3. SCC Units:<br><b>Tons Burned (all solid fuels)</b> |
| 4. Maximum Hourly Rate:<br><b>79.374</b>   | 5. Maximum Annual Rate:<br><b>695,271</b> | 6. Estimated Annual Activity Factor:                  |
| 7. Maximum % Sulfur:<br><b>0.3</b>   | 8. Maximum % Ash:<br><b>9.0</b>           | 9. Million Btu per SCC Unit:<br><b>9.008</b>          |
| 10. Segment Comment (limit to 200 characters):<br><br><b>Total biomass all three boilers = 1,436,945 TPY based on 46.1% heat input from wood and 53.9% from bagasse.</b> |   |   |

**E. SEGMENT (PROCESS/FUEL) INFORMATION**  
(All Emissions Units)

**Segment Description and Rate:** Segment  3  of  5

|   |  |  |
|---|--|--|
| 1. Segment Description (Process/Fuel Type) (limit to 500 characters):<br><br><b>Electric Utility Boiler - Distillate Oil - Grades 1 and 2 Oil</b>   |  |  |
| 2. Source Classification Code (SCC):<br><b>10100501</b>   |  | 3. SCC Units:<br><b>Thousand Gallons Burned (all liquid fuels)</b> |
| 4. Maximum Hourly Rate:<br><b>3.551</b>   | 5. Maximum Annual Rate:<br><b>10,639</b> | 6. Estimated Annual Activity Factor:                               |
| 7. Maximum % Sulfur:<br><b>0.05</b>   | 8. Maximum % Ash:                        | 9. Million Btu per SCC Unit:<br><b>138</b>                         |
| 10. Segment Comment (limit to 200 characters):<br><br><b>Maximum annual rate represents 24.9% oil firing on a heat input basis. Total No. 2 fuel all three boilers = 19,533,086 gal/yr.</b> |  |  |

**Segment Description and Rate:** Segment  4  of  5

|  |  |   |
|--|--|---|
| 1. Segment Description (Process/Fuel Type ) (limit to 500 characters):<br><br><b>Electric Utility Boiler - Bituminous Coal - Spreader Stoker</b>   |  |   |
| 2. Source Classification Code (SCC):<br><b>10100204</b>  |  | 3. SCC Units:<br><b>Tons Burned (all solid fuels)</b> |
| 4. Maximum Hourly Rate:<br><b>20.417</b>   | 5. Maximum Annual Rate:<br><b>44,920</b> | 6. Estimated Annual Activity Factor:                  |
| 7. Maximum % Sulfur:<br><b>0.70</b>  | 8. Maximum % Ash:<br><b>3.70</b>         | 9. Million Btu per SCC Unit:<br><b>24</b>             |
| 10. Segment Comment (limit to 200 characters):<br><br><b>Maximum annual rate = 18.0% coal-firing on a heat input basis. Total coal all three boilers = 44,920 TPY (9.6% coal burning on a heat input basis).</b> |  |   |

**E. SEGMENT (PROCESS/FUEL) INFORMATION  
(All Emissions Units)**

**Segment Description and Rate:** Segment  5  of  5

|   |   |  |
|---|---|--|
| 1. Segment Description (Process/Fuel Type) (limit to 500 characters):<br><br><b>Electric Utility Boiler – Natural Gas</b>   |   |  |
| 2. Source Classification Code (SCC):<br><b>10100601</b>   |   | 3. SCC Units:<br><b>MMscf Burned</b>         |
| 4. Maximum Hourly Rate:<br><b>0.605</b>   | 5. Maximum Annual Rate:<br><b>1,468</b> | 6. Estimated Annual Activity Factor:         |
| 7. Maximum % Sulfur:  | 8. Maximum % Ash:                       | 9. Million Btu per SCC Unit:<br><b>1,000</b> |
| 10. Segment Comment (limit to 200 characters):<br><br><b>Maximum annual rate represents 24.9% gas firing on a heat input basis. Total natural gas all three boilers = 2,696 MMscf/yr.</b> |   |  |

**Segment Description and Rate:** Segment      of    

|   |                         |                                      |
|---|-------------------------|--------------------------------------|
| 1. Segment Description (Process/Fuel Type) (limit to 500 characters): |                         |                                      |
| 2. Source Classification Code (SCC):                                  |                         | 3. SCC Units:                        |
| 4. Maximum Hourly Rate:   | 5. Maximum Annual Rate: | 6. Estimated Annual Activity Factor: |
| 7. Maximum % Sulfur:  | 8. Maximum % Ash:       | 9. Million Btu per SCC Unit:         |
| 10. Segment Comment (limit to 200 characters):                        |                         |                                      |

**F. EMISSIONS UNIT POLLUTANTS  
(All Emissions Units)**

| 1. Pollutant Emitted | 2. Primary Control Device Code | 3. Secondary Control Device Code | 4. Pollutant Regulatory Code |
|----------------------|--------------------------------|----------------------------------|------------------------------|
| PM                   | 076                            | 010                              | EL                           |
| PM <sub>10</sub>     | 076                            | 010                              | EL                           |
| SO <sub>2</sub>      |                                |                                  | EL                           |
| NO <sub>x</sub>      | 107                            |                                  | EL                           |
| CO                   |                                |                                  | EL                           |
| VOC                  |                                |                                  | EL                           |
| PB                   | 076                            | 010                              | EL                           |
| SAM                  |                                |                                  | EL                           |
| FL                   |                                |                                  | EL                           |
| H114                 | 048                            |                                  | EL                           |
| H021                 | 076                            | 010                              | EL                           |
|                      |                                |                                  |                              |
|                      |                                |                                  |                              |
|                      |                                |                                  |                              |
|                      |                                |                                  |                              |
|                      |                                |                                  |                              |
|                      |                                |                                  |                              |
|                      |                                |                                  |                              |
|                      |                                |                                  |                              |

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
**(Regulated Emissions Units -**  
**Emissions-Limited and Preconstruction Review Pollutants Only)**

**Potential/Fugitive Emissions**

|   |   |
|---|---|
| 1. Pollutant Emitted:<br><b>SO<sub>2</sub></b>  | 2. Total Percent Efficiency of Control:                           |
| 3. Potential Emissions:<br><b>588 lb/hour      696.0 tons/year</b>  | 4. Synthetically Limited? [ <input checked="" type="checkbox"/> ] |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1      [ ] 2      [ ] 3      _____ to _____ tons/year                              |   |
| 6. Emission Factor: <b>1.2 lb/MMBtu</b><br>Reference: <b>40 CFR 60 Subpart Da</b>   | 7. Emissions Method Code:<br><b>0</b>                             |
| 8. Calculation of Emissions (limit to 600 characters):<br><br><b>1.2 lb/MMBtu x 490 MMBtu/hr = 588.0 lb/hr</b>                      |   |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):<br><br><b>1,154.3 TPY total for all three boilers.</b> |   |

**Allowable Emissions** Allowable Emissions 1 of 3

|   |   |
|---|---|
| 1. Basis for Allowable Emissions Code:<br><b>OTHER</b>  | 2. Future Effective Date of Allowable Emissions:                                |
| 3. Requested Allowable Emissions and Units:<br><b>0.20 lb/MMBtu</b>   | 4. Equivalent Allowable Emissions:<br><b>143.0 lb/hour      313.2 tons/year</b> |
| 5. Method of Compliance (limit to 60 characters):<br><br><b>Continuous SO<sub>2</sub> monitor</b>   |   |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><br><b>Requested Allowable Emissions: 0.2 lb/MMBtu 24-hr avg; Annual-0.10 lb/MMBtu. Based on biomass firing.</b> |   |

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION  
(Regulated Emissions Units -  
Emissions-Limited and Preconstruction Review Pollutants Only)**

**Potential/Fugitive Emissions**

|   |  |   |  |
|---|--|---|--|
| 1. Pollutant Emitted:<br><b>SO<sub>2</sub></b>  |  | 2. Total Percent Efficiency of Control: |  |
| 3. Potential Emissions:<br>lb/hour _____ tons/year _____                                |  | 4. Synthetically Limited? [ ]           |  |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year |  |   |  |
| 6. Emission Factor:<br>Reference:   |  | 7. Emissions Method Code:               |  |
| 8. Calculation of Emissions (limit to 600 characters):                                  |  |   |  |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):            |  |   |  |

**Allowable Emissions** Allowable Emissions 2 of 3

|  |  |  |  |
|--|--|--|--|
| 1. Basis for Allowable Emissions Code:<br><b>OTHER</b>   |  | 2. Future Effective Date of Allowable Emissions:                         |  |
| 3. Requested Allowable Emissions and Units:<br><b>1.20 lb/MMBtu</b>  |  | 4. Equivalent Allowable Emissions:<br><b>588 lb/hour 646.8 tons/year</b> |  |
| 5. Method of Compliance (limit to 60 characters):<br><b>Limit coal burning to 18.0% for any single boiler.</b>   |  |  |  |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><b>Basis for Allowable Emissions Code: NSPS. Based on coal firing</b> |  |  |  |



**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
**(Regulated Emissions Units -**  
**Emissions-Limited and Preconstruction Review Pollutants Only)**

**Potential/Fugitive Emissions**

|   |   |                               |
|---|---|-------------------------------|
| 1. Pollutant Emitted:<br><b>SO<sub>2</sub></b>  | 2. Total Percent Efficiency of Control: |                               |
| 3. Potential Emissions:<br>lb/hour  | tons/year                               | 4. Synthetically Limited? [ ] |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year |   |                               |
| 6. Emission Factor:<br>Reference:   |   | 7. Emissions Method Code:     |
| 8. Calculation of Emissions (limit to 600 characters):                                  |   |                               |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):            |   |                               |

**Allowable Emissions** Allowable Emissions 3 of 3

|  |  |                |
|--|--|----------------|
| 1. Basis for Allowable Emissions Code:<br><b>RULE</b>  | 2. Future Effective Date of Allowable Emissions: |                |
| 3. Requested Allowable Emissions and Units:<br><b>0.05 lb/MMBtu</b>  | 24.5 lb/hour                                     | 36.7 tons/year |
| 4. Equivalent Allowable Emissions:   |  |                |
| 5. Method of Compliance (limit to 60 characters):<br><b>Limit fuel oil burning to 24.9% for any single boiler.</b>                       |  |                |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><b>Based on No. 2 fuel oil firing and BACT.</b> |  |                |

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
**(Regulated Emissions Units -**  
**Emissions-Limited and Preconstruction Review Pollutants Only)**

Potential/Fugitive Emissions

|  |   |
|--|---|
| 1. Pollutant Emitted:<br><b>CO</b>   | 2. Total Percent Efficiency of Control:                       |
| 3. Potential Emissions:<br><b>715 lb/hour                      1,096.3 tons/year</b>   | 4. Synthetically Limited? <input checked="" type="checkbox"/> |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1            [ ] 2            [ ] 3            _____ to _____ tons/year   |   |
| 6. Emission Factor: <b>1 lb/MMBtu</b><br>Reference: <b>Boiler design</b>   | 7. Emissions Method Code:                                     |
| 8. Calculation of Emissions (limit to 600 characters):<br><br><b>1.0 lb/MMBtu x 715 MMBtu/hr = 715.0 lb/hr</b><br><b>0.35 lb/MMBtu x 715 MMBtu/hr x 8,760 hr/yr ÷ 2,000 lb/ton = 1,096.3 TPY</b>           |   |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):<br><br><b>1.0 lb/MMBtu as a 24-hr average; 0.35 lb/MMBtu as an annual average. Total for all three boilers = 2,012.5 TPY.</b> |   |

Allowable Emissions Allowable Emissions 1 of 1

|   |  |
|---|--|
| 1. Basis for Allowable Emissions Code:<br><b>OTHER</b>  | 2. Future Effective Date of Allowable Emissions:                           |
| 3. Requested Allowable Emissions and Units:<br><b>0.35 lb/MMBtu</b>   | 4. Equivalent Allowable Emissions:<br><br>lb/hour <b>1,096.3 tons/year</b> |
| 5. Method of Compliance (limit to 60 characters):<br><br><b>EPA Method 10 annually.</b>   |  |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><br><b>lb/MMBtu limit based on 12-month rolling average. All three boilers limited to 2,012.5 TPY.</b> |  |

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
**(Regulated Emissions Units -**  
**Emissions-Limited and Preconstruction Review Pollutants Only)**

**Potential/Fugitive Emissions**

|  |   |
|--|---|
| 1. Pollutant Emitted:<br><b>SAM</b>  | 2. Total Percent Efficiency of Control:                       |
| 3. Potential Emissions:<br><b>17.6 lb/hour      34.39 tons/year</b>  | 4. Synthetically Limited? <input checked="" type="checkbox"/> |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1      [ ] 2      [ ] 3      _____ to _____ tons/year   |   |
| 6. Emission Factor: <b>0.036 lb/MMBtu</b><br>Reference: <b>Permit</b>  | 7. Emissions Method Code:                                     |
| 8. Calculation of Emissions (limit to 600 characters):<br><br><b>0.036 lb/MMBtu x 490 MMBtu/hr = 17.6 lb/hr</b>                                  |   |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):<br><br><b>Based on coal firing, 50.4 TPY total for all boilers.</b> |   |

**Allowable Emissions** Allowable Emissions 1 of 3

|   |   |
|---|---|
| 1. Basis for Allowable Emissions Code:<br><b>OTHER</b>  | 2. Future Effective Date of Allowable Emissions:                              |
| 3. Requested Allowable Emissions and Units:<br><b>0.036 lb/MMBtu</b>  | 4. Equivalent Allowable Emissions:<br><b>17.6 lb/hour      19.4 tons/year</b> |
| 5. Method of Compliance (limit to 60 characters):<br><br><b>EPA Method 8 once every 5 years.</b>                          |   |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><br><b>Based on coal firing.</b> |   |



**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION  
(Regulated Emissions Units -  
Emissions-Limited and Preconstruction Review Pollutants Only)**

**Potential/Fugitive Emissions**

|   |  |   |  |
|---|--|---|--|
| 1. Pollutant Emitted:<br><b>SAM</b>   |  | 2. Total Percent Efficiency of Control: |  |
| 3. Potential Emissions:<br>lb/hour  |  | 4. Synthetically Limited? [ ]           |  |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year |  |   |  |
| 6. Emission Factor:<br>Reference:   |  | 7. Emissions Method Code:               |  |
| 8. Calculation of Emissions (limit to 600 characters):                                  |  |   |  |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):            |  |   |  |

**Allowable Emissions** Allowable Emissions 3 of 3

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

**H. VISIBLE EMISSIONS INFORMATION**  
**(Only Regulated Emissions Units Subject to a VE Limitation)**

**Visible Emissions Limitation:** Visible Emissions Limitation 1 of 1

|  |  |
|--|--|
| 1. Visible Emissions Subtype:<br><b>VE20</b>   | 2. Basis for Allowable Opacity:<br><input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other |
| 3. Requested Allowable Opacity:<br>Normal Conditions: <b>20 %</b> Exceptional Conditions: <b>27 %</b><br>Maximum Period of Excess Opacity Allowed: <b>6 min/hour</b> |  |
| 4. Method of Compliance:<br><b>EPA Method 9</b>  |  |
| 5. Visible Emissions Comment (limit to 200 characters):<br><br><b>40 CFR 60, Subpart Da.</b>   |  |

**I. CONTINUOUS MONITOR INFORMATION**  
**(Only Regulated Emissions Units Subject to Continuous Monitoring)**

**Continuous Monitoring System:** Continuous Monitor 1 of 5

|  |   |
|--|---|
| 1. Parameter Code: <b>VE</b>   | 2. Pollutant(s):  |
| 3. CMS Requirement:  | <input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other |
| 4. Monitor Information:<br>Manufacturer: <b>Durag</b><br>Model Number: <b>D-R281-31-AV</b> Serial Number: <b>31019</b> |   |
| 5. Installation Date:<br><b>01-Oct-1995</b>  | 6. Performance Specification Test Date:                                 |
| 7. Continuous Monitor Comment (limit to 200 characters):<br><br><b>40 CFR 60, Subpart Da</b>                           |   |

**H. VISIBLE EMISSIONS INFORMATION**  
(Only Regulated Emissions Units Subject to a VE Limitation)**Visible Emissions Limitation:** Visible Emissions Limitation \_\_\_\_\_ of \_\_\_\_\_

|   |   |
|---|---|
| 1. Visible Emissions Subtype:   | 2. Basis for Allowable Opacity:<br>[ ] Rule [ ] Other |
| 3. Requested Allowable Opacity:<br>Normal Conditions: _____ % Exceptional Conditions: _____ %<br>Maximum Period of Excess Opacity Allowed: _____ min/hour |   |
| 4. Method of Compliance:  |   |
| 5. Visible Emissions Comment (limit to 200 characters):   |   |

**I. CONTINUOUS MONITOR INFORMATION**  
(Only Regulated Emissions Units Subject to Continuous Monitoring)**Continuous Monitoring System:** Continuous Monitor 2 of 5

|  |  |
|--|--|
| 1. Parameter Code: <b>EM</b>   | 2. Pollutant(s): <b>NO<sub>x</sub></b>                 |
| 3. CMS Requirement:  | [ <input checked="" type="checkbox"/> ] Rule [ ] Other |
| 4. Monitor Information:<br>Manufacturer: <b>Thermo Environmental Instruments</b><br>Model Number: <b>42D</b> Serial Number: <b>42D-52618-292</b> |  |
| 5. Installation Date:<br><b>01-Oct-1995</b>  | 6. Performance Specification Test Date:                |
| 7. Continuous Monitor Comment (limit to 200 characters):<br><br><b>40 CFR 60, Subpart Da</b>   |  |

**H. VISIBLE EMISSIONS INFORMATION**  
**(Only Regulated Emissions Units Subject to a VE Limitation)**

**Visible Emissions Limitation:** Visible Emissions Limitation \_\_\_\_\_ of \_\_\_\_\_

|   |   |
|---|---|
| 1. Visible Emissions Subtype:   | 2. Basis for Allowable Opacity:<br>[ ] Rule [ ] Other |
| 3. Requested Allowable Opacity:<br>Normal Conditions: _____ % Exceptional Conditions: _____ %<br>Maximum Period of Excess Opacity Allowed: _____ min/hour |   |
| 4. Method of Compliance:  |   |
| 5. Visible Emissions Comment (limit to 200 characters):   |   |

**I. CONTINUOUS MONITOR INFORMATION**  
**(Only Regulated Emissions Units Subject to Continuous Monitoring)**

**Continuous Monitoring System:** Continuous Monitor 3 of 5

|  |   |
|--|---|
| 1. Parameter Code: <b>EM</b>   | 2. Pollutant(s): <b>SO<sub>2</sub></b>  |
| 3. CMS Requirement: [ ] Rule [ <b>X</b> ] Other  |   |
| 4. Monitor Information:<br>Manufacturer: <b>Thermo Environmental Instruments</b><br>Model Number: <b>43B</b> Serial Number: <b>43B-51400-292</b> |   |
| 5. Installation Date:<br><b>01-Oct-1995</b>  | 6. Performance Specification Test Date: |
| 7. Continuous Monitor Comment (limit to 200 characters):<br><br><b>40 CFR 60, Subpart Da</b>   |   |



**H. VISIBLE EMISSIONS INFORMATION**  
**(Only Regulated Emissions Units Subject to a VE Limitation)**

**Visible Emissions Limitation:** Visible Emissions Limitation \_\_\_\_\_ of \_\_\_\_\_

|   |   |
|---|---|
| 1. Visible Emissions Subtype:   | 2. Basis for Allowable Opacity:<br>[ ] Rule [ ] Other |
| 3. Requested Allowable Opacity:<br>Normal Conditions: _____ % Exceptional Conditions: _____ %<br>Maximum Period of Excess Opacity Allowed: _____ min/hour |   |
| 4. Method of Compliance:  |   |
| 5. Visible Emissions Comment (limit to 200 characters):   |   |

**I. CONTINUOUS MONITOR INFORMATION**  
**(Only Regulated Emissions Units Subject to Continuous Monitoring)**

**Continuous Monitoring System:** Continuous Monitor  4  of  5

|  |   |
|--|---|
| 1. Parameter Code: <b>EM</b>   | 2. Pollutant(s): <b>CO</b>              |
| 3. CMS Requirement: [ ] Rule [ <b>X</b> ] Other  |   |
| 4. Monitor Information:<br>Manufacturer: <b>Thermo Environmental Instruments</b><br>Model Number: <b>48</b> Serial Number: <b>48-45334-273</b> |   |
| 5. Installation Date:<br><b>01-Oct-1995</b>  | 6. Performance Specification Test Date: |
| 7. Continuous Monitor Comment (limit to 200 characters):   |   |

**H. VISIBLE EMISSIONS INFORMATION**  
 (Only Regulated Emissions Units Subject to a VE Limitation)

**Visible Emissions Limitation:** Visible Emissions Limitation   of

|   |   |
|---|---|
| 1. Visible Emissions Subtype:   | 2. Basis for Allowable Opacity:<br>[ ] Rule [ ] Other |
| 3. Requested Allowable Opacity:<br>Normal Conditions: % Exceptional Conditions: %<br>Maximum Period of Excess Opacity Allowed: min/hour |   |
| 4. Method of Compliance:  |   |
| 5. Visible Emissions Comment (limit to 200 characters):   |   |

**I. CONTINUOUS MONITOR INFORMATION**  
 (Only Regulated Emissions Units Subject to Continuous Monitoring)

**Continuous Monitoring System:** Continuous Monitor  5  of  5

|  |   |
|--|---|
| 1. Parameter Code:   | 2. Pollutant(s): <b>O<sub>2</sub></b>   |
| 3. CMS Requirement:  | [ X ] Rule [ ] Other                    |
| 4. Monitor Information:<br>Manufacturer: <b>Yokogawa</b><br>Model Number: <b>ZA8C</b> Serial Number: <b>JJ113MA345</b> |   |
| 5. Installation Date:<br><b>01-Oct-1995</b>  | 6. Performance Specification Test Date: |
| 7. Continuous Monitor Comment (limit to 200 characters):<br><br><b>40 CFR 60, Subpart Da</b>                           |   |

**J. EMISSIONS UNIT SUPPLEMENTAL INFORMATION  
(Regulated Emissions Units Only)**

**Supplemental Requirements**

|  |
|--|
| 1. Process Flow Diagram<br>[ X ] Attached, Document ID: <u>OC-FI-C3</u> [ ] Not Applicable [ ] Waiver Requested                          |
| 2. Fuel Analysis or Specification<br>[ X ] Attached, Document ID: <u>OC-EU1-J2</u> [ ] Not Applicable [ ] Waiver Requested               |
| 3. Detailed Description of Control Equipment<br>[ X ] Attached, Document ID: <u>OC-EU1-J3</u> [ ] Not Applicable [ ] Waiver Requested    |
| 4. Description of Stack Sampling Facilities<br>[ ] Attached, Document ID: _____ [ X ] Not Applicable [ ] Waiver Requested                |
| 5. Compliance Test Report<br>[ ] Attached, Document ID: _____<br>[ ] Previously submitted, Date: _____<br>[ X ] Not Applicable           |
| 6. Procedures for Startup and Shutdown<br>[ ] Attached, Document ID: _____ [ X ] Not Applicable [ ] Waiver Requested                     |
| 7. Operation and Maintenance Plan<br>[ ] Attached, Document ID: _____ [ X ] Not Applicable [ ] Waiver Requested                          |
| 8. Supplemental Information for Construction Permit Application<br>[ X ] Attached, Document ID: <u>Attachment A</u> [ X ] Not Applicable |
| 9. Other Information Required by Rule or Statute<br>[ ] Attached, Document ID: _____ [ X ] Not Applicable                                |
| 10. Supplemental Requirements Comment:   |

**Additional Supplemental Requirements for Title V Air Operation Permit Applications**

|   |
|---|
| 11. Alternative Methods of Operation<br><input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable  |
| 12. Alternative Modes of Operation (Emissions Trading)<br><input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable  |
| 13. Identification of Additional Applicable Requirements<br><input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable  |
| 14. Compliance Assurance Monitoring Plan<br><input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable  |
| 15. Acid Rain Part Application (Hard-copy Required)<br><input type="checkbox"/> Acid Rain Part - Phase II (Form No. 62-210.900(1)(a))<br>Attached, Document ID: _____<br><input type="checkbox"/> Repowering Extension Plan (Form No. 62-210.900(1)(a)1.)<br>Attached, Document ID: _____<br><input type="checkbox"/> New Unit Exemption (Form No. 62-210.900(1)(a)2.)<br>Attached, Document ID: _____<br><input type="checkbox"/> Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)<br>Attached, Document ID: _____<br><input type="checkbox"/> Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.)<br>Attached, Document ID: _____<br><input type="checkbox"/> Phase NOx Averaging Plan (Form No. 62-210.900(1)(a)5.)<br>Attached, Document ID: _____<br><input checked="" type="checkbox"/> Not Applicable |

**ATTACHMENT OC-EU1-J2**  
**FUEL ANALYSIS OR SPECIFICATION**

**ATTACHMENT OC-EU1-J2  
DESIGN FUEL SPECIFICATIONS<sup>a</sup> FOR THE  
OKEELANTA POWER COGENERATION FACILITY**

| Parameter                                 | Biomass |               | No. 2<br>Fuel Oil | Bituminous<br>Coal | Natural<br>Gas |
|---|---------|---------------|-------------------|--------------------|----------------|
|   | Bagasse | Wood<br>Waste |                   |                    |                |
| Specific Gravity                          | -       | -             | 0.865             | -                  | -              |
| Heating Value (Btu/lb)                    | 3,653   | 4,504         | 19,175            | 12,000             | -              |
| Heating Value (Btu/gal)                   | -       | -             | 138,000           | -                  | -              |
| Heating Value (Btu/scf)                   |         |               |                   |                    | 1,000          |
| Ultimate Analysis (dry basis percentage): |         |               |                   |                    |                |
| Carbon                                    | 48.93   | 49.58         | 87.01             | 82.96              |                |
| Hydrogen                                  | 6.14    | 5.87          | 12.47             | 5.41               |                |
| Nitrogen                                  | 0.25    | 0.40          | 0.02              | 1.58               |                |
| Oxygen                                    | 43.84   | 40.90         | 0.00              | 5.72               |                |
| Sulfur                                    | 0.03    | 0.07          | 0.05              | 0.67               |                |
| Ash/Inorganic                             | 1.0     | 9.0           | 0.00              | 3.66               |                |
| Moisture                                  | 52      | 37            | -                 | 4.5                |                |

<sup>a</sup> Represents average fuel characteristics.

Sources: Okeelanta Power, 2000.  
Combustion Engineering, 1981.

**ATTACHMENT OC-EU1-J3**  
**DETAILED DESCRIPTION OF CONTROL EQUIPMENT**

## ATTACHMENT OC-EU1-J3 DETAILED DESCRIPTION OF CONTROL EQUIPMENT

The cogeneration facility utilizes several emission control techniques to reduce emissions. A selective non-catalytic reduction (SNCR) system is used to reduce NO<sub>x</sub> emissions. Further, the cogeneration boilers minimize CO and VOC through proper furnace design and good combustion practices, including: control of combustion air and combustion temperature; distribution of fuel on the combustion grate; and controls over the furnace loads and transient conditions. Particulate emissions are controlled by an ESP. Multiple cyclones were installed during the 2000 calendar year to improve control of particulate emissions. Mercury emissions are controlled through a carbon injection system and the ESP system.

### Electrostatic Precipitator

The EPS's for the Okeelanta Power facility are manufactured by Flakt, Inc. Design specifications for the ESP (one per boiler) are provided below:

Chambers = 1

Collecting Plate = 12.30 ft L x 39.37 ft H

Fields/Chamber = 3

Specific Collection Area = 200 ft<sup>2</sup>/1,000 acfm (minimum)

Gas Velocity = <4 ft/s

Pressure Drop = less than 2.8 inches H<sub>2</sub>O

Operating Temperature = 350°F

Ash Handling = Trough hopper with screw conveyor

Particulate removal efficiency: >99.2%

### NO<sub>x</sub> Control System

The NO<sub>x</sub> control system design employs a urea injection system manufactured by Nalco-Fueltech for NO<sub>x</sub> control. The technology is a selective non-catalytic reduction process, which reduces NO<sub>x</sub> emissions through chemical reaction with urea. In the process, urea is injected into the flue gas stream and reacts with nitrogen oxides to form nitrogen and water vapor.



The NO<sub>x</sub> control system includes the following major components:

- Carrier air compressors.
- Urea tank.
- Urea/air flow controls.
- Control panel.
- Injection manifolds and injectors.
- Valves and instrumentation.

A single urea storage tank system is installed to supply urea to all three boilers. Urea for injection into the boilers is drawn from the tank. Two injection zones are used to provide injection at full and part load conditions. Each zone has six injectors. Zone switching valves will direct the urea/carrier mixture to the appropriate injection zone.

Specifications for the urea injection system to meet the NO<sub>x</sub> emission rate of 0.15 lb/MMBtu when firing biomass or No. 2 fuel oil, and 0.17 lb/MMBtu when firing coal, are provided below (on a per boiler basis):

Urea injection rate - 65 gal/hr (max)

Ammonia Slip    - Biomass, No. 2 fuel oil - 25 ppm (max)  
                         - Coal - 65 ppm (max)

#### Mercury Control System

The mercury control system is supplied by ABB Environmental Systems and Chemco, Inc. A volumetric feeder with integral supply hopper meters activated carbon for injection at a point in the ductwork between the ESP and the ID fan. This promotes turbulent mixing and provides adequate residence time. A blower system transports the carbon to the injection point. The ESP will effectively capture the activated carbon particles along with the boiler fly ash (which also contains some carbon). The system is designed to inject up to 13 lb/hr of carbon into the flue gases of each boiler.

#### Dust Control System

The cyclone dust collectors will be supplied by Barron Industries, Model 460 Tube Base III 9K15-2023 AU. These are mechanical cyclone dust collectors which remove larger size particulate matter prior to the ESP. There are 460 Cyclone tubes in all.



Jeb Bush  
Governor

# Department of Environmental Protection

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

June 22, 1999

David B. Struhs  
Secretary

## CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. James Meriwether  
Environmental Manager  
Okeelanta Cogeneration Facility  
Post Office Box 9  
South Bay, Florida 33493

RE: DEP File No. 0990332-010-AC (PSD-FL-196F)  
Permit Modifications

Dear Mr. Meriwether:

This is in response to Golder Associates' letter dated December 14, 1998 and fee received February 2, 1999 requesting changes to the subject construction permit. The Department considered the requests and agrees to modify the permit conditions as indicated below. The request for revising the 0.35 lb CO/MMBtu limit from a 24-hour averaging time to a 30-day rolling average was approved. However, the requested increase to 0.5 lb CO/MMBtu was not granted based on our conclusion from the test data that the longer term average can be met at 0.35 lb/MMBtu. The requested modifications of provisions related to excess emissions and other changes are indicated by the underlined additions.

The permit is hereby modified as shown below. The excess fee paid will be refunded separately.

### SPECIFIC CONDITION NO. 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:

| Pollutant                       | EMISSION LIMIT (per boiler) <sup>d</sup> |         |            |         |            |         | Total <sup>e</sup><br>Three<br>Boilers<br>(TPY) |
|---------------------------------|--|---------|------------|---------|------------|---------|---|
|                                 | Biomass                                  |         | No. 2 Oil  |         | Bit. Coal  |         |   |
|                                 | (lb/MMBtu)                               | (lb/hr) | (lb/MMBtu) | (lb/hr) | (lb/MMBtu) | (lb/hr) |   |
| Particulate (TSP)               | 0.03                                     | 21.5    | 0.03       | 14.7    | 0.03       | 14.7    | 172.5   |
| Particulate (PM <sub>10</sub> ) | 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                  |  |         |            |         |            |         |   |
| (Bagasse)                       | 0.02 a                                   |         |            |         | 1.2 a      |         | 1,154.3 f                                       |
| (Wood Waste)                    | 0.05a c                                  |         |            |         |            |         |   |
| Nitrogen Oxides                 |  |         |            |         |            |         |   |
| Annual average                  | 0.15 a                                   | 107.3 a | 0.15 a     | 73.5 a  | 0.17 a     | 83.3 a  | 862.5   |

Mr. James Meriwether  
June 22, 1999  
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|   |                         |          |                      |         |                      |         |          |
|---|-------------------------|----------|----------------------|---------|----------------------|---------|----------|
| Carbon Monoxide<br>24 hour 30-day<br>rolling avg. | 0.35 a                  | 250.3 a  | 0.35 a               | 171.5 a | 0.35 a               | 171.5 a | 2,012.5  |
| Volatile Organic<br>Compounds                     | 0.06                    | 42.9     | 0.03                 | 14.7    | 0.03                 | 14.7    | 345      |
| Lead (Bagasse)                                    | $2.5 \times 10^{-3}$ b  | 0.018 b  | $8.9 \times 10^{-7}$ | 0.0004  | $6.4 \times 10^{-5}$ | 0.031   | 0.454 f  |
| " (Wood Waste)                                    | $1.6 \times 10^{-4}$ c  | 0.114 c  |                      |         |                      |         |          |
| Mercury (Bagasse)                                 | $5.43 \times 10^{-4}$ b | 0.0039 b | $2.4 \times 10^{-6}$ | 0.00118 | $8.4 \times 10^{-6}$ | 0.0041  | 0.0300 f |
| " (Wood Waste)                                    | $4.0 \times 10^{-4}$ c  | 0.0029 c |                      |         |                      |         |          |
| Beryllium   | ---                     | ---      | $3.5 \times 10^{-7}$ | 0.00017 | $5.9 \times 10^{-6}$ | 0.0029  | 0.0052   |
| Fluorides   | ---                     | ---      | $6.3 \times 10^{-6}$ | 0.0003  | 0.024                | 11.8    | 21.2     |
| Sulfuric Acid Mist                                | 0.003                   | 2.15     | 0.0015               | 0.74    | 0.036                | 17.6    | 34.6     |

Table Notes:

- a Compliance based on 30-day rolling average, per 40 CFR 60, Subpart Da.

[CO Limit: Although carbon monoxide (CO) emissions are not regulated by NSPS Subpart Da, compliance shall be demonstrated in a similar manner. The CO emissions from each boiler shall not exceed 0.35 pounds per MMBTU based on a 30-day (boiler operating days) rolling average. Compliance with this standard shall be demonstrated by continuous emissions monitoring data. The 30-day rolling average shall be determined by calculating the arithmetic average of all hourly emission rates for 30 successive boiler operating days. The 1-hour averages shall be expressed in lb/MMBTU of heat input and are calculated using at least two valid data points. Calculation of the 30-day rolling average shall consist of at least 18 hours in at least 22 out of 30 successive boiler operating days. If this minimum data requirement cannot be met with a continuous monitoring system, the permittee shall supplement emission data with other monitoring systems approved by the EPA Administrator or the reference methods and procedures as described in 40 CFR 60.47a.]

- b Emission limit for bagasse. Subject to revision after testing pursuant to Specific Condition Nos. 24 and 25.
- c Emission limit for wood waste. Subject to revision after testing pursuant to Specific Condition Nos. 24 and 25.
- d The emission limit shall be prorated when more than one type of fuel is burned in a boiler.
- e Limit heat input from No. 2 fuel to less than 24.9 of total heat input on a calendar quarter basis, coal to 69,720 tons during any 12-month period, and the combination of oil and coal to less than 24.9 of the total heat input on a calendar quarter basis.
- f Compliance based on a 12-month rolling average for any fuel combination.

The permittee shall comply with the excess emissions rule contained in Rule 62-210.700, F.A.C. In addition, the permittee is allowed excess emissions during startup, and shutdown and malfunction in accordance with permit condition No. 21, ~~provided such excess emissions do not exceed a duration of four hours, and such emissions in excess of two hours do not exceed six (6) times per year.~~ Periods of startup, shutdown and malfunction shall be defined as:

a. Startup is the commencement of operation of a boiler which has shut down or ceased operation for a period of time sufficient to cause temperature, pressure, chemical or pollution control device imbalances, which may result in excess emissions. Periods of startup for each boiler shall end once steam generation reaches 150,000 pounds per hour.

b. Shutdown is the cessation of the operation of a boiler for any purpose after steam generation drops below 150,000 pounds per hour.

Mr. James Meriwether  
 June 22, 1999  
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c. Malfunction is any unavoidable mechanical and/or electrical failure of air pollution control equipment or process equipment or of a process resulting in operation in an abnormal or unusual manner.

[Rule 62-210.200 (179), (258), (275), F.A.C. and Rule 62-4.070(3), F.A.C.]

#### SPECIFIC CONDITION NO. 21

- a. Within 60 calendar days after achieving the maximum capacity at which each unit will be operated, but no later than 180 operating days after initial startup, the permittee shall conduct emission compliance tests for all air pollutants listed in Specific Condition No. 20 (including visible emissions). Test shall be conducted during normal operations (i.e., within 10 percent of the heat input). The permittee shall furnish the Department a written report of the results of such performance tests within 45 days of completion of the tests. The performance tests will be conducted in accordance with the provisions of 40 CFR 60.46a.
- b. Compliance with emission limitations for each fuel stated in Specific Condition No. 20 above shall be demonstrated using EPA Methods, as contained in 40 CFR Part 60 (Standards of Performance for New Stationary Sources), continuous emissions monitoring data, or 40 CFR Part 61 (National Emission Standards for Hazardous Air Pollutants), or any other method as approved by the Department, in accordance with F.A.C. Rule 62-297.620. A test protocol shall be submitted for approval to the Bureau of Air Regulation at least 90 days prior to testing.

| <u>EPA Method*</u> | <u>For Determination of</u>  |
|--------------------|--|
| 1                  | Selection of sample site and velocity traverses.   |
| 2                  | Stack gas flow rate when converting concentrations to or from mass emission limits.  |
| 3 or 3A            | Gas analysis when needed for calculation of molecular weight or percent O <sub>2</sub> .   |
| 4                  | Moisture content when converting stack velocity to dry volumetric flow rate for use in converting concentrations in dry gases to or from mass emission limits.   |
| 5                  | Particulate matter concentration and mass emissions.   |
| 201 or 201A        | PM <sub>10</sub> emissions.  |
| 6, 6C, or 19       | Sulfur dioxide emissions from stationary sources.  |
| 7, or 7E           | Nitrogen oxide emissions from stationary sources.  |
| 8 (modified)       | Sulfuric acid mist. **   |
| 9                  | Visible emission determination of opacity.<br>- At least three one hour runs to be conducted simultaneously with particulate testing.<br>- At least one truck unloading into the mercury reactant storage silo (from start to finish). |
| 10                 | Carbon monoxide emissions from stationary sources.   |
| 12                 | Determination of inorganic lead emissions from stationary sources.   |
| 13A or 13B         | Fluoride emissions from stationary sources.  |
| 18 or 25           | Volatile organic compounds concentration.  |
| 101A               | Determination of particulate and gaseous mercury emissions.  |

Mr. James Merivether  
 June 22, 1999  
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| <u>EPA Method*</u>               | <u>For Determination of</u>                                   |
|----------------------------------|---|
| 104                              | Determination of beryllium emissions from stationary sources. |
| 108                              | Determination of particulate and gaseous arsenic emissions.   |
| EMTIC Test Method<br>CTM-012.WPF | Chromium and copper emissions.                                |

- \* Other approved EPA test methods may be substituted for the listed method unless the Department has adopted a specific test method for the air pollutant.
- \*\* Test for sulfuric acid mist only required when coal is burned at the facility.

c. Continuous emission monitoring data required by this permit shall be collected and recorded during all periods of operation including startup, shutdown, and malfunction, except for continuous monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments. Although recorded, emissions during periods of startup, shutdown and malfunction may be excluded from the averaging calculations required to determine compliance with the emissions standards, not to exceed four (4) hours during startup, four (4) hours during shutdown, nor two (2) hours during malfunction in a 24-hour period. Excess Emissions beyond these periods shall be recorded and included in the averaging calculations required to determine compliance with the emissions standards. The permittee shall submit to the regulating agencies a Quarterly Excess Emissions Report within 30 days of the end of each calendar quarter. The report shall identify the date, time, and description of each startup, shutdown, and malfunction resulting in excess emissions. It shall also identify any steps taken to mitigate emissions during any malfunction as well as any corrective actions taken.

[Air Permit PSD-FL-196; Rule 62-210.700, F.A.C.; 40 CFR 60.8; and 40 CFR 60.46a]

- d. Excess emissions resulting from startup, shutdown or malfunction of a boiler shall be permitted for standards based on short-term averaging periods (shorter than 24-hour averages) as specified in this permit, providing:
- a. The operators implement best operational practices to minimize emissions, and
  - b. Excess emissions do not exceed four (4) hours for startup, four (4) hours for shutdown, nor two (2) hours for malfunction in any 24-hour period (day).

Within one (1) working day of excess emissions due to a malfunction, the permittee shall notify the regulating agencies of the date, time, description, steps to taken to minimize emissions, and actions taken to correct the problem.

Excess emissions which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during startup, shutdown, or malfunction shall be prohibited. Excess emissions of standards based on long-term averaging periods (24-hour averages or longer) are not permitted because compliance is demonstrated by continuous monitor and provisions of this permit allow exclusion of monitoring data for periods of startup, shutdown, and malfunction.

[Rule 62-210.700, F.A.C.; Rule 62-4.070(3), F.A.C.; 40 CFR 60.8; and 40 CFR 60.46a]

Mr. James Meriwether  
June 22, 1999  
Page 5

This permit is issued pursuant to Chapter 403, Florida Statutes. A copy of this letter shall be filed with the referenced permit and certification and shall become part of the permit. Any party to this order has the right to seek judicial review of it under section 120.68 of the Florida Statutes, by filing a notice of appeal under rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department of Environmental Protection in the Office of General Counsel, Mail Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000, and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The notice must be filed within thirty (30) days after this order is filed with the clerk of the Department.

Sincerely,



Howard L. Rhodes, Director  
Division of Air Resources  
Management

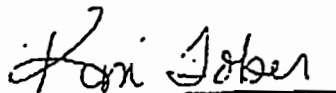
#### CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this Notice of Final Permit was sent by certified mail (\*) and copies were mailed by U.S. Mail before the close of business on 6-24-99 to the person(s) listed:

Mr. James Meriwether, Okeelanta Power Limited Partnership\*  
Mr. James Stormer, Palm Beach County Health Department  
Mr. Phil Barbaccia, SD - DEP  
Mr. Gregg Worley, EPA  
Mr. John Bunyak, NPS

Clerk Stamp

**FILING AND ACKNOWLEDGMENT**  
FILED, on this date, pursuant to §120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

  
(Clerk)

6-24-99  
Date)

### III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A through J as required) must be completed for each emissions unit addressed in this Application for Air Permit. If submitting the application form in hard copy, indicate, in the space provided at the top of each page, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application.

#### A. GENERAL EMISSIONS UNIT INFORMATION (All Emissions Units)

##### Emissions Unit Description and Status

|   |                          |   |                    |
|---|--------------------------|---|--------------------|
| 1. Type of Emissions Unit Addressed in This Section: (Check one)  |                          |   |                    |
| [ X ] This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent). |                          |   |                    |
| [ ] This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.     |                          |   |                    |
| [ ] This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.  |                          |   |                    |
| 2. Regulated or Unregulated Emissions Unit? (Check one)   |                          |   |                    |
| [ X ] The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.  |                          |   |                    |
| [ ] The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.   |                          |   |                    |
| 3. Description of Emissions Unit Addressed in This Section (limit to 60 characters):  |                          |   |                    |
| <b>Cogen Boiler B fired by Biomass/No. 2 oil/coal/natural gas</b>   |                          |   |                    |
| 4. Emissions Unit Identification Number:  |                          |   |                    |
| ID: <b>031</b>  |                          | [ ] No ID                               | [ ] ID Unknown     |
| 5. Emissions Unit Status Code:  | 6. Initial Startup Date: | 7. Emissions Unit Major Group SIC Code: | 8. Acid Rain Unit? |
| <b>A</b>  |                          | <b>49</b>                               | [ ]                |
| 9. Emissions Unit Comment: (Limit to 500 Characters)  |                          |   |                    |
| <b>74.9 MW gross generating capacity for entire facility.</b>   |                          |   |                    |

**Emissions Unit Control Equipment**

1. Control Equipment/Method Description (Limit to 200 characters per device or method):

**ESP - Electrostatic Precipitator**

**Selective Non-catalytic Reduction for NO<sub>x</sub>**

**Activated Carbon Injection System**

**Multiple Cyclone w/o Fly Ash Injection**

2. Control Device or Method Code(s): **10, 107, 48, 76**

**Emissions Unit Details**

|   |               |
|---|---------------|
| 1. Package Unit:                            |               |
| Manufacturer:                               | Model Number: |
| 2. Generator Nameplate Rating: <b>75 MW</b> |               |
| 3. Incinerator Information:                 |               |
| Dwell Temperature:                          | °F            |
| Dwell Time:                                 | seconds       |
| Incinerator Afterburner Temperature:        | °F            |



**B. EMISSIONS UNIT CAPACITY INFORMATION  
(Regulated Emissions Units Only)**

**Emissions Unit Operating Capacity and Schedule**

|   |  |                  |
|---|--|------------------|
| 1. Maximum Heat Input Rate:                                       | 715 mmBtu/hr   |                  |
| 2. Maximum Incineration Rate:                                     | lb/hr  | tons/day         |
| 3. Maximum Process or Throughput Rate:                            |  |                  |
| 4. Maximum Production Rate:                                       |  |                  |
| 5. Requested Maximum Operating Schedule:                          | 24 hours/day   | 7 days/week      |
|   | 52 weeks/year  | 8,760 hours/year |
| 6. Operating Capacity/Schedule Comment (limit to 200 characters): | <p><b>Maximum heat input rates: Biomass - 715 MMBtu/hr; No. 2 Fuel Oil - 490 MMBtu/hr; Coal - 490 MMBtu/hr; Natural Gas - 605 MMBtu/hr</b></p> |                  |



## EU ID 031 : Cogen Boiler No. 2 Rule Applicability for Okeelanta Power L.P.

| APPLIC STAT    | RULE DESCRIP  | RULE NUMBER       | RULE TITLE  | RATIONALE FOR NON-APPLICABILITY                                     |
|----------------|---------------|-------------------|---|---|
| APPLICABLE     | 60 Subpart A  | 40CFR60.1         | Subpart A – General Provisions  |   |
| APPLICABLE     | 60 Subpart A  | 40CFR60.7         | Notification and Record Keeping   |   |
| APPLICABLE     | 60 Subpart A  | 40CFR60.8         | Performance Testing   |   |
| APPLICABLE     | 60 Subpart A  | 40CFR60.11        | Compliance with standards and maintenance requirements.   |   |
| APPLICABLE     | 60 Subpart A  | 40CFR60.12        | Circumvention.  |   |
| APPLICABLE     | 60 Subpart A  | 40CFR60.13        | Monitoring requirements.  |   |
| APPLICABLE     | 60 Subpart A  | 40CFR60.19        | General notification and reporting requirements   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.40a       | Subpart Da - NSPS for Electric Utility Units for which construction commenced after Sept. 18, 1978. |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.42a       | Standard for particulate matter   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.43a       | Standard for sulfur dioxide.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.43a(a)    | Standard for sulfur dioxide.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.43a(b)    | Standard for sulfur dioxide.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.43a(d)(2) | Standard for sulfur dioxide.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.43a(g)    | Standard for sulfur dioxide.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.43a(h)    | Standard for sulfur dioxide.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.44a       | Standard for nitrogen oxides  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.44a(a)    | Standard for nitrogen oxides  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.44a(c)    | Standard for nitrogen oxides  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.46a       | Compliance provisions.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.46a(a)    | Compliance provisions.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.46a(b)    | Compliance provisions.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.46a(c)    | Compliance provisions.  |   |
| NON-APPLICABLE | 60 Subpart Da | 40CFR60.46a(d)    | Compliance provisions.  | Cogen Boiler No. 2 does not have a flue gas desulfurization system. |
| APPLICABLE     | 60 Subpart Da | 40CFR60.46a(e)    | Compliance provisions.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.46a(f)    | Compliance provisions.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.46a(g)    | Compliance provisions.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.46a(h)    | Compliance provisions.  |   |
| NON-APPLICABLE | 60 Subpart Da | 40CFR60.46a(i)    | Compliance provisions.  | Cogen Boiler No. 2 has not been modified after July 7, 1997.        |
| APPLICABLE     | 60 Subpart Da | 40CFR60.47a       | Emission monitoring   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.47a(a)    | Emission monitoring   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.47a(b)(2) | Emission monitoring   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.47a(b)(3) | Emission monitoring   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.47a(c)(1) | Emission monitoring   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.47a(d)    | Emission monitoring   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.47a(e)    | Emission monitoring   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.47a(f)    | Emission monitoring   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.47a(g)    | Emission monitoring   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.47a(h)    | Emission monitoring   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.47a(i)    | Emission monitoring   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.47a(j)    | Emission monitoring   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.48a       | Compliance determination procedures and methods.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.48a(a)    | Compliance determination procedures and methods.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.48a(b)    | Compliance determination procedures and methods.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.48a(c)    | Compliance determination procedures and methods.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.48a(d)    | Compliance determination procedures and methods.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.48a(e)    | Compliance determination procedures and methods.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.49a       | Reporting requirements  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.49a(a)    | Reporting requirements  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.49a(b)    | Reporting requirements  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.49a(c)    | Reporting requirements  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.49a(d)    | Reporting requirements  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.49a(f)    | Reporting requirements  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.49a(g)    | Reporting requirements  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.49a(h)    | Reporting requirements  |   |

**EU ID 031 : Cogen Boiler No. 2 Rule Applicability for Okeelanta Power L.P.**

| APPLIC STAT    | RULE DESCRIP  | RULE NUMBER        | RULE TITLE   | RATIONALE FOR NON-APPLICABILITY   |
|----------------|---------------|--------------------|--|---|
| APPLICABLE     | 60 Subpart Da | 40CFR60.49a(i)     | Reporting requirements   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.49a(j)     | Reporting requirements   |   |
| APPLICABLE     | 60 Subpart Ea | 40CFR60.50a(d)     | Standards of performance for municipal waste combustors  |   |
| APPLICABLE     | 60 Subpart Ea | 40CFR60.50b(j)     | Standards of performance for municipal waste combustors  |   |
| APPLICABLE     | 62-204        | 62-204.800(7)2     | NSPS Subpart Da adopted by reference.  |   |
| APPLICABLE     | 62-296 <      | 62-296             | STATIONARY SOURCES - EMISSION STANDARDS  |   |
| APPLICABLE     | 62-296 <      | 62-296.405(2)      | Fossil Fuel Steam Generators with more than 250 million Btu per Hour Heat Input.                       |   |
| NON-APPLICABLE | 62-296 <      | 62-296.406         | Fossil Fuel Steam Generators with less than 250 Million Btu per Hour Heat Input, New and Existing Em   | Cogen Boiler No. 2 has a heat input of > 250 MMBtu/hr.  |
| NON-APPLICABLE | 62-296 <      | 62-296.410         | Carbonaceous Fuel Burning Equipment.   | Not more stringent or different than NSPS.  |
| APPLICABLE     | 62-296 >      | 62-296.500         | Reasonably Available Control Technology (RACT) - Volatile Organic Compounds (VOC) and Nitrogen Oxide   |   |
| APPLICABLE     | 62-296 >      | 62-296.500(2)(a)   | Reasonably Available Control Technology (RACT) - Volatile Organic Compounds (VOC) and Nitrogen Oxide   |   |
| APPLICABLE     | 62-296 >      | 62-296.500(2)(c)   | Reasonably Available Control Technology (RACT) - Volatile Organic Compounds (VOC) and Nitrogen Oxide   |   |
| APPLICABLE     | 62-296 >      | 62-296.570         | Reasonably Available Control Technology (RACT) - Requirements for Major VOC- and NOx-Emitting Facility |   |
| APPLICABLE     | 62-296 >      | 62-296.570(1)      | Applicability.   |   |
| APPLICABLE     | 62-296 >      | 62-296.570(1)(a)   | Applicability.   |   |
| APPLICABLE     | 62-296 >      | 62-296.570(2)      | Compliance Requirements.   |   |
| APPLICABLE     | 62-296 >      | 62-296.570(3)      | Operation Permit Requirements.   |   |
| APPLICABLE     | 62-296 >      | 62-296.570(4)      | Operation Permit Requirements.   |   |
| APPLICABLE     | 62-296 >      | 62-296.570(4)(a)   | Operation Permit Requirements.   |   |
| APPLICABLE     | 62-296 >      | 62-296.570(4)(b)6. | Operation Permit Requirements.   |   |
| APPLICABLE     | 62-296 >      | 62-296.570(4)(c)   | Operation Permit Requirements.   |   |
| APPLICABLE     | 62-296 >      | 62-296.620         |  |   |
| NON-APPLICABLE | 62-296 >      | 62-296.700         | Reasonably Available Control Technology (RACT) Particulate Matter.                                     | Okeelanta Power is located in Palm Beach County, which is not a nonattainment or maintenance area for particulate matter. |
| NON-APPLICABLE | 62-296 >      | 62-296.702         | Fossil Fuel Steam Generators.  | Okeelanta Power is located in Palm Beach County, which is not a nonattainment or maintenance area for particulate matter. |
| NON-APPLICABLE | 62-296 >      | 62-296.703         | Carbonaceous Fuel Burners.   | Okeelanta Power is located in Palm Beach County, which is not a nonattainment or maintenance area for particulate matter. |
| APPLICABLE     | 62-297        | 62-297             | STATIONARY SOURCES - EMISSIONS MONITORING  |   |
| APPLICABLE     | 62-297        | 62-297.310         | General Compliance Test Requirements.  |   |
| APPLICABLE     | 62-297        | 62-297.401         | Compliance Test Methods.   |   |
| APPLICABLE     | 62-297        | 62-297.401(1)(a)   | EPA Method 1 - Sample and Velocity Traverses for Stationary sources - 40 CFR 60 Appendix A.            |   |
| APPLICABLE     | 62-297        | 62-297.401(10)     | EPA Method 10 - Determination of Carbon Monoxide Emissions from Stationary Sources - 40 CFR 60 Appen   |   |
| APPLICABLE     | 62-297        | 62-297.401(12)     | EPA Method 12 - Determination of Inorganic Lead Emissions from Stationary Sources - 40 CFR 60 Append   |   |
| APPLICABLE     | 62-297        | 62-297.401(13)     | EPA Methods 13A and 13B.   |   |
| APPLICABLE     | 62-297        | 62-297.401(18)     | EPA Method 18 - Measurement of Gaseous Organic Compound Emissions by Gas Chromatography - 40 CFR 60    |   |
| APPLICABLE     | 62-297        | 62-297.401(19)     | EPA Method 19 - Determination of Sulfur Dioxide Removal Efficiency and Particulate, Sulfur Dioxide a   |   |
| APPLICABLE     | 62-297        | 62-297.401(2)      | EPA Method 2 - Determination of Stack Gas Velocity and Volumetric Flow Rate - 40 CFR 60 Appendix A.    |   |

## EU ID 031 : Cogen Boiler No. 2 Rule Applicability for Okeelanta Power L.P.

| APPLIC STAT | RULE DESCRIP | RULE NUMBER      | RULE TITLE  | RATIONALE FOR NON-APPLICABILITY |
|-------------|--------------|------------------|---|---------------------------------|
| APPLICABLE  | 62-297       | 62-297.401(25)   | EPA Method 25 - Determination of Total Gaseous Nonmethane Organic Emissions as Carbon - 40 CFR 60 Ap  |                                 |
| APPLICABLE  | 62-297       | 62-297.401(3)    | EPA Method 3 - Gas Analysis for Carbon Dioxide, Oxygen, Excess Air, and Dry Molecular Weight - 40 CF  |                                 |
| APPLICABLE  | 62-297       | 62-297.401(32)   | EPA Method 101 - Determination of Particulate and Gaseous Mercury Emissions from Chlor-Alkali Plants  |                                 |
| APPLICABLE  | 62-297       | 62-297.401(35)   | EPA Method 104 - Determination of Beryllium Emissions from Stationary Sources - 40 CFR 61 Appendix B  |                                 |
| APPLICABLE  | 62-297       | 62-297.401(39)   | EPA Method 108 - Determination of Particulate and Gaseous Arsenic Emissions - 40 CFR 61 Appendix B.   |                                 |
| APPLICABLE  | 62-297       | 62-297.401(4)    | EPA Method 4 - Determination of Moisture Content in Stack Gases - 40 CFR 60 Appendix A.               |                                 |
| APPLICABLE  | 62-297       | 62-297.401(41)   | EPA Method 201 - Determination of PM10 Emissions (Exhaust Gas Recycle Procedure) - 40 CFR 51 Appendi  |                                 |
| APPLICABLE  | 62-297       | 62-297.401(5)    | EPA Method 5 - Determination of Particulate Emissions from Stationary Sources - 40 CFR 60 Appendix A  |                                 |
| APPLICABLE  | 62-297       | 62-297.401(6)    | EPA Method 6 - Determination of Sulfur Dioxide Emissions from Stationary Sources - 40 CFR 60 Appendi  |                                 |
| APPLICABLE  | 62-297       | 62-297.401(6)(c) | EPA Method 6C - Determination of Sulfur Dioxide Emissions from Stationary Sources - 40 CFR 60 Appendi |                                 |
| APPLICABLE  | 62-297       | 62-297.401(7)    | EPA Method 7 - Determination of Nitrogen Oxide Emissions from Stationary Sources - 40 CFR 60 Appendi  |                                 |
| APPLICABLE  | 62-297       | 62-297.401(7)(e) | EPA Method 7E - Determination of Nitrogen Oxide Emissions from Stationary Sources - 40 CFR 60 Appendi |                                 |
| APPLICABLE  | 62-297       | 62-297.401(8)    | EPA Method 8 - Determination of Sulfuric Acid Mist and Sulfur Dioxide Emissions from Stationary Sour  |                                 |
| APPLICABLE  | 62-297       | 62-297.401(9)    | EPA Test Method 9   |                                 |

**D. EMISSION POINT (STACK/VENT) INFORMATION**  
**(Regulated Emissions Units Only)**

**Emission Point Description and Type**

|  |  |  |  |
|--|--|--|--|
| 1. Identification of Point on Plot Plan or Flow Diagram? <b>BLR B</b>  |  | 2. Emission Point Type Code:<br><b>1</b>           |  |
| 3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking (limit to 100 characters per point): |  |  |  |
| 4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:                                    |  |  |  |
| 5. Discharge Type Code:<br><b>V</b>  | 6. Stack Height:<br><b>199 feet</b>                    | 7. Exit Diameter:<br><b>10.0 feet</b>              |  |
| 8. Exit Temperature:<br><b>295 °F</b>  | 9. Actual Volumetric Flow Rate:<br><b>246,000 acfm</b> | 10. Water Vapor:<br><b>%</b>                       |  |
| 11. Maximum Dry Standard Flow Rate:<br><b>dscfm</b>  |  | 12. Nonstack Emission Point Height:<br><b>feet</b> |  |
| 13. Emission Point UTM Coordinates:<br>Zone: East (km): North (km):  |  |  |  |
| 14. Emission Point Comment (limit to 200 characters):<br><br><b>Stack parameters based on biomass firing.</b>          |  |  |  |

**E. SEGMENT (PROCESS/FUEL) INFORMATION  
(All Emissions Units)**

**Segment Description and Rate:** Segment  1  of  5

|  |   |   |
|--|---|---|
| 1. Segment Description (Process/Fuel Type) (limit to 500 characters):<br><br><b>Electric Utility Boiler - Bagasse</b>  |   |   |
| 2. Source Classification Code (SCC):<br><b>10101101</b>  |   | 3. SCC Units:<br><b>Tons Burned (all solid fuels)</b> |
| 4. Maximum Hourly Rate:<br><b>97.865</b>   | 5. Maximum Annual Rate:<br><b>857,295</b> | 6. Estimated Annual Activity Factor:                  |
| 7. Maximum % Sulfur:<br><b>0.05</b>  | 8. Maximum % Ash:<br><b>1.0</b>           | 9. Million Btu per SCC Unit:<br><b>7.306</b>          |
| 10. Segment Comment (limit to 200 characters):<br><br><b>Total biomass all three boilers = 1,436,945 TPY based on 46.1% heat input from wood and 53.9% from bagasse.</b> |   |   |

**Segment Description and Rate:** Segment  2  of  5

|  |   |   |
|--|---|---|
| 1. Segment Description (Process/Fuel Type) (limit to 500 characters):<br><br><b>Electric Utility Boiler - Wood Fired Boiler</b>  |   |   |
| 2. Source Classification Code (SCC):<br><b>10100903</b>  |   | 3. SCC Units:<br><b>Tons Burned (all solid fuels)</b> |
| 4. Maximum Hourly Rate:<br><b>79.374</b>   | 5. Maximum Annual Rate:<br><b>695,271</b> | 6. Estimated Annual Activity Factor:                  |
| 7. Maximum % Sulfur:<br><b>0.3</b>   | 8. Maximum % Ash:<br><b>9.0</b>           | 9. Million Btu per SCC Unit:<br><b>9.008</b>          |
| 10. Segment Comment (limit to 200 characters):<br><br><b>Total biomass all three boilers = 1,436,945 TPY based on 46.1% heat input from wood and 53.9% from bagasse.</b> |   |   |

**E. SEGMENT (PROCESS/FUEL) INFORMATION**  
(All Emissions Units)

**Segment Description and Rate:** Segment  3  of  5

|   |  |  |
|---|--|--|
| 1. Segment Description (Process/Fuel Type) (limit to 500 characters):<br><br><b>Electric Utility Boiler - Distillate Oil - Grades 1 and 2 Oil</b>   |  |  |
| 2. Source Classification Code (SCC):<br><b>10100501</b>   |  | 3. SCC Units:<br><b>Thousand Gallons Burned (all liquid fuels)</b> |
| 4. Maximum Hourly Rate:<br><b>3.551</b>   | 5. Maximum Annual Rate:<br><b>10,639</b> | 6. Estimated Annual Activity Factor:                               |
| 7. Maximum % Sulfur:<br><b>0.05</b>   | 8. Maximum % Ash:                        | 9. Million Btu per SCC Unit:<br><b>138</b>                         |
| 10. Segment Comment (limit to 200 characters):<br><br><b>Maximum annual rate represents 24.9% oil firing on a heat input basis. Total No. 2 fuel all three boilers = 19,533,086 gal/yr.</b> |  |  |

**Segment Description and Rate:** Segment  4  of  5

|  |  |   |
|--|--|---|
| 1. Segment Description (Process/Fuel Type) (limit to 500 characters):<br><br><b>Electric Utility Boiler - Bituminous Coal - Spreader Stoker</b>  |  |   |
| 2. Source Classification Code (SCC):<br><b>10100204</b>  |  | 3. SCC Units:<br><b>Tons Burned (all solid fuels)</b> |
| 4. Maximum Hourly Rate:<br><b>20.417</b>   | 5. Maximum Annual Rate:<br><b>44,920</b> | 6. Estimated Annual Activity Factor:                  |
| 7. Maximum % Sulfur:<br><b>0.70</b>  | 8. Maximum % Ash:<br><b>3.70</b>         | 9. Million Btu per SCC Unit:<br><b>24</b>             |
| 10. Segment Comment (limit to 200 characters):<br><br><b>Maximum annual rate = 18.0% coal firing on a heat input basis. Total coal all three boilers = 44,920 TPY (9.6% coal burning on a heat input basis).</b> |  |   |



**E. SEGMENT (PROCESS/FUEL) INFORMATION  
(All Emissions Units)**

**Segment Description and Rate:** Segment 5 of 5

|   |   |  |
|---|---|--|
| 1. Segment Description (Process/Fuel Type) (limit to 500 characters):<br><br><b>Electric Utility Boiler – Natural Gas</b>   |   |  |
| 2. Source Classification Code (SCC):<br><b>10100601</b>   |   | 3. SCC Units:<br><b>MMscf Burned</b>         |
| 4. Maximum Hourly Rate:<br><b>0.605</b>   | 5. Maximum Annual Rate:<br><b>1,468</b> | 6. Estimated Annual Activity Factor:         |
| 7. Maximum % Sulfur:  | 8. Maximum % Ash:                       | 9. Million Btu per SCC Unit:<br><b>1,000</b> |
| 10. Segment Comment (limit to 200 characters):<br><br><b>Maximum annual rate represents 24.9% gas firing on a heat input basis. Total natural gas all three boilers = 2,696 MMscf/yr.</b> |   |  |

**Segment Description and Rate:** Segment      of     

|   |                         |                                      |
|---|-------------------------|--------------------------------------|
| 1. Segment Description (Process/Fuel Type) (limit to 500 characters): |                         |                                      |
| 2. Source Classification Code (SCC):                                  |                         | 3. SCC Units:                        |
| 4. Maximum Hourly Rate:   | 5. Maximum Annual Rate: | 6. Estimated Annual Activity Factor: |
| 7. Maximum % Sulfur:  | 8. Maximum % Ash:       | 9. Million Btu per SCC Unit:         |
| 10. Segment Comment (limit to 200 characters):                        |                         |                                      |

**F. EMISSIONS UNIT POLLUTANTS  
(All Emissions Units)**

| 1. Pollutant Emitted | 2. Primary Control Device Code | 3. Secondary Control Device Code | 4. Pollutant Regulatory Code |
|----------------------|--------------------------------|----------------------------------|------------------------------|
| PM                   | 076                            | 010                              | EL                           |
| PM <sub>10</sub>     | 076                            | 010                              | EL                           |
| SO <sub>2</sub>      |                                |                                  | EL                           |
| NO <sub>x</sub>      | 107                            |                                  | EL                           |
| CO                   |                                |                                  | EL                           |
| VOC                  |                                |                                  | EL                           |
| PB                   | 076                            | 010                              | EL                           |
| SAM                  |                                |                                  | EL                           |
| FL                   |                                |                                  | EL                           |
| H114                 | 048                            |                                  | EL                           |
| H021                 | 076                            | 010                              | EL                           |
|                      |                                |                                  |                              |
|                      |                                |                                  |                              |
|                      |                                |                                  |                              |
|                      |                                |                                  |                              |
|                      |                                |                                  |                              |
|                      |                                |                                  |                              |
|                      |                                |                                  |                              |
|                      |                                |                                  |                              |

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION  
(Regulated Emissions Units -  
Emissions-Limited and Preconstruction Review Pollutants Only)**

**Potential/Fugitive Emissions**

|   |  |   |  |
|---|--|---|--|
| 1. Pollutant Emitted:<br><b>SO<sub>2</sub></b>  |  | 2. Total Percent Efficiency of Control:                           |  |
| 3. Potential Emissions:<br><b>588</b> lb/hour <b>696.0</b> tons/year  |  | 4. Synthetically Limited? [ <input checked="" type="checkbox"/> ] |  |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1      [ ] 2      [ ] 3      _____ to _____ tons/year                              |  |   |  |
| 6. Emission Factor: <b>1.2 lb/MMBtu</b><br>Reference: <b>40 CFR 60 Subpart Da</b>   |  | 7. Emissions Method Code:<br><b>0</b>                             |  |
| 8. Calculation of Emissions (limit to 600 characters):<br><br><b>1.2 lb/MMBtu x 490 MMBtu/hr = 588.0 lb/hr</b>                      |  |   |  |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):<br><br><b>1,154.3 TPY total for all three boilers.</b> |  |   |  |

**Allowable Emissions** Allowable Emissions 1 of 3

|   |  |   |  |
|---|--|---|--|
| 1. Basis for Allowable Emissions Code:<br><b>OTHER</b>  |  | 2. Future Effective Date of Allowable Emissions:                                  |  |
| 3. Requested Allowable Emissions and Units:<br><b>0.20 lb/MMBtu</b>   |  | 4. Equivalent Allowable Emissions:<br><b>143.0</b> lb/hour <b>313.2</b> tons/year |  |
| 5. Method of Compliance (limit to 60 characters):<br><br><b>Continuous SO<sub>2</sub> monitor</b>   |  |   |  |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><br><b>Requested Allowable Emissions: 0.2 lb/MMBtu 24-hr avg; Annual-0.10 lb/MMBtu. Based on biomass firing.</b> |  |   |  |

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
**(Regulated Emissions Units -**  
**Emissions-Limited and Preconstruction Review Pollutants Only)**

**Potential/Fugitive Emissions**

|   |  |   |  |
|---|--|---|--|
| 1. Pollutant Emitted:<br><b>SO<sub>2</sub></b>  |  | 2. Total Percent Efficiency of Control: |  |
| 3. Potential Emissions:<br>lb/hour  |  | 4. Synthetically Limited? [ ]           |  |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year |  |   |  |
| 6. Emission Factor:<br>Reference:   |  | 7. Emissions Method Code:               |  |
| 8. Calculation of Emissions (limit to 600 characters):                                  |  |   |  |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):            |  |   |  |

**Allowable Emissions** Allowable Emissions 2 of 3

|  |  |   |  |
|--|--|---|--|
| 1. Basis for Allowable Emissions Code:<br><b>OTHER</b>   |  | 2. Future Effective Date of Allowable Emissions:                        |  |
| 3. Requested Allowable Emissions and Units:<br><b>1.20 lb/MMBtu</b>  |  | 4. Equivalent Allowable Emissions:<br><b>588 lb/hour 36.7 tons/year</b> |  |
| 5. Method of Compliance (limit to 60 characters):<br><b>Limit coal burning to 18.0% for any single boiler.</b>   |  |   |  |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><b>Basis for Allowable Emissions Code: NSPS. Based on coal firing</b> |  |   |  |



**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
**(Regulated Emissions Units -**  
**Emissions-Limited and Preconstruction Review Pollutants Only)**

**Potential/Fugitive Emissions**

|  |   |
|--|---|
| 1. Pollutant Emitted:<br><b>CO</b>   | 2. Total Percent Efficiency of Control:                       |
| 3. Potential Emissions:<br><b>715 lb/hour      1,096.3 tons/year</b>   | 4. Synthetically Limited? <input checked="" type="checkbox"/> |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1      [ ] 2      [ ] 3      _____ to _____ tons/year   |   |
| 6. Emission Factor: <b>1 lb/MMBtu</b><br>Reference: <b>Boiler design</b>   | 7. Emissions Method Code:                                     |
| 8. Calculation of Emissions (limit to 600 characters):<br><br><b>1.0 lb/MMBtu x 715 MMBtu/hr = 715.0 lb/hr</b><br><b>0.35 lb/MMBtu x 715 MMBtu/hr x 8,760 hr/yr ÷ 2,000 lb/ton = 1,096.3 TPY</b>           |   |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):<br><br><b>1.0 lb/MMBtu as a 24-hr average; 0.35 lb/MMBtu as an annual average. Total for all three boilers = 2,012.5 TPY.</b> |   |

**Allowable Emissions** Allowable Emissions 1 of 1

|   |   |
|---|---|
| 1. Basis for Allowable Emissions Code:<br><b>OTHER</b>  | 2. Future Effective Date of Allowable Emissions:                            |
| 3. Requested Allowable Emissions and Units:<br><b>0.35 lb/MMBtu</b>   | 4. Equivalent Allowable Emissions:<br><b>lb/hour      1,096.3 tons/year</b> |
| 5. Method of Compliance (limit to 60 characters):<br><br><b>EPA Method 10 annually.</b>   |   |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><br><b>lb/MMBtu limit based on 12-month rolling average. All three boilers limited to 2,012.5 TPY.</b> |   |

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
**(Regulated Emissions Units -**  
**Emissions-Limited and Preconstruction Review Pollutants Only)**

**Potential/Fugitive Emissions**

|  |   |  |
|--|---|--|
| 1. Pollutant Emitted:<br><b>SAM</b>  | 2. Total Percent Efficiency of Control:                       |  |
| 3. Potential Emissions:<br><b>17.6 lb/hour      34.39 tons/year</b>  | 4. Synthetically Limited? <input checked="" type="checkbox"/> |  |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1      [ ] 2      [ ] 3      _____ to _____ tons/year   |   |  |
| 6. Emission Factor: <b>0.036 lb/MMBtu</b><br>Reference: <b>Permit</b>  | 7. Emissions Method Code:                                     |  |
| 8. Calculation of Emissions (limit to 600 characters):<br><br><b>0.036 lb/MMBtu x 490 MMBtu/hr = 17.6 lb/hr</b>                                  |   |  |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):<br><br><b>Based on coal firing, 50.4 TPY total for all boilers.</b> |   |  |

**Allowable Emissions** Allowable Emissions 1 of 3

|   |   |  |
|---|---|--|
| 1. Basis for Allowable Emissions Code:<br><b>OTHER</b>  | 2. Future Effective Date of Allowable Emissions:                              |  |
| 3. Requested Allowable Emissions and Units:<br><b>0.036 lb/MMBtu</b>  | 4. Equivalent Allowable Emissions:<br><b>17.6 lb/hour      19.4 tons/year</b> |  |
| 5. Method of Compliance (limit to 60 characters):<br><br><b>EPA Method 8 once every 5 years.</b>                          |   |  |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><br><b>Based on coal firing.</b> |   |  |

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION  
(Regulated Emissions Units -  
Emissions-Limited and Preconstruction Review Pollutants Only)**

**Potential/Fugitive Emissions**

|   |  |   |  |
|---|--|---|--|
| 1. Pollutant Emitted:<br><b>SAM</b>   |  | 2. Total Percent Efficiency of Control: |  |
| 3. Potential Emissions:<br>lb/hour  |  | 4. Synthetically Limited? [ ]           |  |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year |  |   |  |
| 6. Emission Factor:<br>Reference:   |  | 7. Emissions Method Code:               |  |
| 8. Calculation of Emissions (limit to 600 characters):                                  |  |   |  |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):            |  |   |  |

**Allowable Emissions** Allowable Emissions 2 of 3

|  |  |  |  |
|--|--|--|--|
| 1. Basis for Allowable Emissions Code:<br><b>OTHER</b>   |  | 2. Future Effective Date of Allowable Emissions:                         |  |
| 3. Requested Allowable Emissions and Units:<br><b>0.012 lb/MMBtu</b>   |  | 4. Equivalent Allowable Emissions:<br><b>8.6 lb/hour 19.10 tons/year</b> |  |
| 5. Method of Compliance (limit to 60 characters):<br><b>EPA Method 8 once every 5 years</b>                              |  |  |  |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><b>Based on biomass firing.</b> |  |  |  |



**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
**(Regulated Emissions Units -**  
**Emissions-Limited and Preconstruction Review Pollutants Only)**

**Potential/Fugitive Emissions**

|   |  |   |  |
|---|--|---|--|
| 1. Pollutant Emitted:<br><b>SAM</b>   |  | 2. Total Percent Efficiency of Control: |  |
| 3. Potential Emissions:<br>lb/hour _____ tons/year _____                                |  | 4. Synthetically Limited? [ ]           |  |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year |  |   |  |
| 6. Emission Factor:<br>Reference:   |  | 7. Emissions Method Code:               |  |
| 8. Calculation of Emissions (limit to 600 characters):                                  |  |   |  |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):            |  |   |  |

**Allowable Emissions** Allowable Emissions 3 of 3

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

**H. VISIBLE EMISSIONS INFORMATION**  
(Only Regulated Emissions Units Subject to a VE Limitation)

**Visible Emissions Limitation:** Visible Emissions Limitation 1 of 1

|  |  |
|--|--|
| 1. Visible Emissions Subtype:<br><b>VE20</b>   | 2. Basis for Allowable Opacity:<br><input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other |
| 3. Requested Allowable Opacity:<br>Normal Conditions: <b>20 %</b> Exceptional Conditions: <b>27 %</b><br>Maximum Period of Excess Opacity Allowed: <b>6 min/hour</b> |  |
| 4. Method of Compliance:<br><b>EPA Method 9</b>  |  |
| 5. Visible Emissions Comment (limit to 200 characters):<br><br><b>40 CFR 60, Subpart Da.</b>   |  |

**I. CONTINUOUS MONITOR INFORMATION**  
(Only Regulated Emissions Units Subject to Continuous Monitoring)

**Continuous Monitoring System:** Continuous Monitor 1 of 5

|  |   |
|--|---|
| 1. Parameter Code: <b>VE</b>   | 2. Pollutant(s):  |
| 3. CMS Requirement:  | <input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other |
| 4. Monitor Information:<br>Manufacturer: <b>Durag</b><br>Model Number: <b>D-R281-31-AV</b> Serial Number: <b>31019</b> |   |
| 5. Installation Date:<br><b>01-Oct-1995</b>  | 6. Performance Specification Test Date:                                 |
| 7. Continuous Monitor Comment (limit to 200 characters):<br><br><b>40 CFR 60, Subpart Da</b>                           |   |

**H. VISIBLE EMISSIONS INFORMATION**  
**(Only Regulated Emissions Units Subject to a VE Limitation)**

**Visible Emissions Limitation:** Visible Emissions Limitation \_\_\_\_\_ of \_\_\_\_\_

|   |   |
|---|---|
| 1. Visible Emissions Subtype:   | 2. Basis for Allowable Opacity:<br>[ ] Rule [ ] Other |
| 3. Requested Allowable Opacity:<br>Normal Conditions: _____ % Exceptional Conditions: _____ %<br>Maximum Period of Excess Opacity Allowed: _____ min/hour |   |
| 4. Method of Compliance:  |   |
| 5. Visible Emissions Comment (limit to 200 characters):   |   |

**I. CONTINUOUS MONITOR INFORMATION**  
**(Only Regulated Emissions Units Subject to Continuous Monitoring)**

**Continuous Monitoring System:** Continuous Monitor 2 of 5

|  |  |
|--|--|
| 1. Parameter Code: <b>EM</b>   | 2. Pollutant(s): <b>NO<sub>x</sub></b>                 |
| 3. CMS Requirement:  | [ <input checked="" type="checkbox"/> ] Rule [ ] Other |
| 4. Monitor Information:<br>Manufacturer: <b>Thermo Environmental Instruments</b><br>Model Number: <b>42D</b> Serial Number: <b>42D-52618-292</b> |  |
| 5. Installation Date:<br><b>01-Oct-1995</b>  | 6. Performance Specification Test Date:                |
| 7. Continuous Monitor Comment (limit to 200 characters):<br><br><b>40 CFR 60, Subpart Da</b>   |  |

**H. VISIBLE EMISSIONS INFORMATION**  
**(Only Regulated Emissions Units Subject to a VE Limitation)**

**Visible Emissions Limitation:** Visible Emissions Limitation \_\_\_\_\_ of \_\_\_\_\_

|   |   |
|---|---|
| 1. Visible Emissions Subtype:   | 2. Basis for Allowable Opacity:<br>[ ] Rule [ ] Other |
| 3. Requested Allowable Opacity:<br>Normal Conditions: _____ % Exceptional Conditions: _____ %<br>Maximum Period of Excess Opacity Allowed: _____ min/hour |   |
| 4. Method of Compliance:  |   |
| 5. Visible Emissions Comment (limit to 200 characters):   |   |

**I. CONTINUOUS MONITOR INFORMATION**  
**(Only Regulated Emissions Units Subject to Continuous Monitoring)**

**Continuous Monitoring System:** Continuous Monitor  3  of  5

|  |   |
|--|---|
| 1. Parameter Code: <b>EM</b>   | 2. Pollutant(s): <b>SO<sub>2</sub></b>  |
| 3. CMS Requirement: [ ] Rule [ <b>X</b> ] Other  |   |
| 4. Monitor Information:<br>Manufacturer: <b>Thermo Environmental Instruments</b><br>Model Number: <b>43B</b> Serial Number: <b>43B-51400-292</b> |   |
| 5. Installation Date:<br><b>01-Oct-1995</b>  | 6. Performance Specification Test Date: |
| 7. Continuous Monitor Comment (limit to 200 characters):<br><br><b>40 CFR 60, Subpart Da</b>   |   |

**H. VISIBLE EMISSIONS INFORMATION**  
**(Only Regulated Emissions Units Subject to a VE Limitation)**

**Visible Emissions Limitation:** Visible Emissions Limitation \_\_\_\_\_ of \_\_\_\_\_

|   |   |
|---|---|
| 1. Visible Emissions Subtype:   | 2. Basis for Allowable Opacity:<br>[ ] Rule [ ] Other |
| 3. Requested Allowable Opacity:<br>Normal Conditions: _____ % Exceptional Conditions: _____ %<br>Maximum Period of Excess Opacity Allowed: _____ min/hour |   |
| 4. Method of Compliance:  |   |
| 5. Visible Emissions Comment (limit to 200 characters):   |   |

**I. CONTINUOUS MONITOR INFORMATION**  
**(Only Regulated Emissions Units Subject to Continuous Monitoring)**

**Continuous Monitoring System:** Continuous Monitor 4 of 5

|  |  |
|--|--|
| 1. Parameter Code: <b>EM</b>   | 2. Pollutant(s): <b>CO</b>                             |
| 3. CMS Requirement:  | [ ] Rule [ <input checked="" type="checkbox"/> ] Other |
| 4. Monitor Information:<br>Manufacturer: <b>Thermo Environmental Instruments</b><br>Model Number: <b>48</b> Serial Number: <b>48-45334-273</b> |  |
| 5. Installation Date:<br><b>01-Oct-1995</b>  | 6. Performance Specification Test Date:                |
| 7. Continuous Monitor Comment (limit to 200 characters):   |  |

**H. VISIBLE EMISSIONS INFORMATION**  
**(Only Regulated Emissions Units Subject to a VE Limitation)**

**Visible Emissions Limitation:** Visible Emissions Limitation \_\_\_\_\_ of \_\_\_\_\_

|   |   |
|---|---|
| 1. Visible Emissions Subtype:   | 2. Basis for Allowable Opacity:<br>[ ] Rule [ ] Other |
| 3. Requested Allowable Opacity:<br>Normal Conditions: _____ % Exceptional Conditions: _____ %<br>Maximum Period of Excess Opacity Allowed: _____ min/hour |   |
| 4. Method of Compliance:  |   |
| 5. Visible Emissions Comment (limit to 200 characters):   |   |

**I. CONTINUOUS MONITOR INFORMATION**  
**(Only Regulated Emissions Units Subject to Continuous Monitoring)**

**Continuous Monitoring System:** Continuous Monitor  5  of  5

|  |  |
|--|--|
| 1. Parameter Code:   | 2. Pollutant(s): <b>O<sub>2</sub></b>                  |
| 3. CMS Requirement:  | [ <input checked="" type="checkbox"/> ] Rule [ ] Other |
| 4. Monitor Information:<br>Manufacturer: <b>Yokogowa</b><br>Model Number: <b>ZA8C</b> Serial Number: <b>JJ113MA345</b> |  |
| 5. Installation Date:<br><b>01-Oct-1995</b>  | 6. Performance Specification Test Date:                |
| 7. Continuous Monitor Comment (limit to 200 characters):<br><br><b>40 CFR 60, Subpart Da</b>                           |  |

**J. EMISSIONS UNIT SUPPLEMENTAL INFORMATION  
(Regulated Emissions Units Only)****Supplemental Requirements**

|  |
|--|
| 1. Process Flow Diagram<br><input checked="" type="checkbox"/> Attached, Document ID: <u>OC-FI-C3</u> [ ] Not Applicable [ ] Waiver Requested  |
| 2. Fuel Analysis or Specification<br><input checked="" type="checkbox"/> Attached, Document ID: <u>OC-EU1-J2</u> [ ] Not Applicable [ ] Waiver Requested   |
| 3. Detailed Description of Control Equipment<br><input checked="" type="checkbox"/> Attached, Document ID: <u>OC-EU1-J3</u> [ ] Not Applicable [ ] Waiver Requested  |
| 4. Description of Stack Sampling Facilities<br>[ ] Attached, Document ID: _____ [ <input checked="" type="checkbox"/> ] Not Applicable [ ] Waiver Requested  |
| 5. Compliance Test Report<br>[ ] Attached, Document ID: _____<br>[ ] Previously submitted, Date: _____<br>[ <input checked="" type="checkbox"/> ] Not Applicable   |
| 6. Procedures for Startup and Shutdown<br>[ ] Attached, Document ID: _____ [ <input checked="" type="checkbox"/> ] Not Applicable [ ] Waiver Requested   |
| 7. Operation and Maintenance Plan<br>[ ] Attached, Document ID: _____ [ <input checked="" type="checkbox"/> ] Not Applicable [ ] Waiver Requested  |
| 8. Supplemental Information for Construction Permit Application<br>[ <input checked="" type="checkbox"/> ] Attached, Document ID: <u>Attachment A</u> [ <input checked="" type="checkbox"/> ] Not Applicable |
| 9. Other Information Required by Rule or Statute<br>[ ] Attached, Document ID: _____ [ <input checked="" type="checkbox"/> ] Not Applicable  |
| 10. Supplemental Requirements Comment:   |

**Additional Supplemental Requirements for Title V Air Operation Permit Applications**

|   |
|---|
| 11. Alternative Methods of Operation<br><input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable  |
| 12. Alternative Modes of Operation (Emissions Trading)<br><input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable  |
| 13. Identification of Additional Applicable Requirements<br><input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable  |
| 14. Compliance Assurance Monitoring Plan<br><input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable  |
| 15. Acid Rain Part Application (Hard-copy Required)<br><input type="checkbox"/> Acid Rain Part - Phase II (Form No. 62-210.900(1)(a))<br>Attached, Document ID: _____<br><input type="checkbox"/> Repowering Extension Plan (Form No. 62-210.900(1)(a)1.)<br>Attached, Document ID: _____<br><input type="checkbox"/> New Unit Exemption (Form No. 62-210.900(1)(a)2.)<br>Attached, Document ID: _____<br><input type="checkbox"/> Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)<br>Attached, Document ID: _____<br><input type="checkbox"/> Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.)<br>Attached, Document ID: _____<br><input type="checkbox"/> Phase NOx Averaging Plan (Form No. 62-210.900(1)(a)5.)<br>Attached, Document ID: _____<br><input checked="" type="checkbox"/> Not Applicable |





**Emissions Unit Control Equipment**

1. Control Equipment/Method Description (Limit to 200 characters per device or method):

- ESP - Electrostatic Precipitator**
- Selective Non-catalytic Reduction for NO<sub>x</sub>**
- Activated Carbon Injection System**
- Multiple Cyclone w/o Fly Ash Injection**

2. Control Device or Method Code(s): **10, 107, 48, 76**

**Emissions Unit Details**

|                                      |               |
|--------------------------------------|---------------|
| 1. Package Unit:                     |               |
| Manufacturer:                        | Model Number: |
| 2. Generator Nameplate Rating:       | <b>75 MW</b>  |
| 3. Incinerator Information:          |               |
| Dwell Temperature:                   | °F            |
| Dwell Time:                          | seconds       |
| Incinerator Afterburner Temperature: | °F            |

**B. EMISSIONS UNIT CAPACITY INFORMATION  
(Regulated Emissions Units Only)**

**Emissions Unit Operating Capacity and Schedule**

|   |  |                  |
|---|--|------------------|
| 1. Maximum Heat Input Rate:                                       | 715 mmBtu/hr   |                  |
| 2. Maximum Incineration Rate:                                     | lb/hr  | tons/day         |
| 3. Maximum Process or Throughput Rate:                            |  |                  |
| 4. Maximum Production Rate:                                       |  |                  |
| 5. Requested Maximum Operating Schedule:                          | 24 hours/day   | 7 days/week      |
|   | 52 weeks/year  | 8,760 hours/year |
| 6. Operating Capacity/Schedule Comment (limit to 200 characters): | <p><b>Maximum heat input rates: Biomass - 715 MMBtu/hr; No. 2 Fuel Oil - 490 MMBtu/hr; Coal - 490 MMBtu/hr; Natural Gas - 605 MMBtu/hr</b></p> |                  |



## EU ID 032 : Cogen Boiler No. 3 Rule Applicability for Okeelanta Power L.P.

| APPLIC STAT    | RULE DESCRIP  | RULE NUMBER       | RULE TITLE  | RATIONALE FOR NON-APPLICABILITY                                     |
|----------------|---------------|-------------------|---|---|
| APPLICABLE     | 60 Subpart A  | 40CFR60.1         | Subpart A - General Provisions  |   |
| APPLICABLE     | 60 Subpart A  | 40CFR60.7         | Notification and Record Keeping   |   |
| APPLICABLE     | 60 Subpart A  | 40CFR60.8         | Performance Testing   |   |
| APPLICABLE     | 60 Subpart A  | 40CFR60.11        | Compliance with standards and maintenance requirements.   |   |
| APPLICABLE     | 60 Subpart A  | 40CFR60.12        | Circumvention.  |   |
| APPLICABLE     | 60 Subpart A  | 40CFR60.13        | Monitoring requirements.  |   |
| APPLICABLE     | 60 Subpart A  | 40CFR60.19        | General notification and reporting requirements   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.40a       | Subpart Da - NSPS for Electric Utility Units for which construction commenced after Sept. 18, 1978. |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.42a       | Standard for particulate matter   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.43a       | Standard for sulfur dioxide.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.43a(a)    | Standard for sulfur dioxide.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.43a(b)    | Standard for sulfur dioxide.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.43a(d)(2) | Standard for sulfur dioxide.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.43a(g)    | Standard for sulfur dioxide.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.43a(h)    | Standard for sulfur dioxide.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.44a       | Standard for nitrogen oxides  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.44a(a)    | Standard for nitrogen oxides  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.44a(c)    | Standard for nitrogen oxides  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.46a       | Compliance provisions.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.46a(a)    | Compliance provisions.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.46a(b)    | Compliance provisions.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.46a(c)    | Compliance provisions.  |   |
| NON-APPLICABLE | 60 Subpart Da | 40CFR60.46a(d)    | Compliance provisions.  | Cogen Boiler No. 3 does not have a flue gas desulfurization system. |
| APPLICABLE     | 60 Subpart Da | 40CFR60.46a(e)    | Compliance provisions.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.46a(f)    | Compliance provisions.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.46a(g)    | Compliance provisions.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.46a(h)    | Compliance provisions.  |   |
| NON-APPLICABLE | 60 Subpart Da | 40CFR60.46a(i)    | Compliance provisions.  | Cogen Boiler No. 3 has not been modified after July 7, 1997.        |
| APPLICABLE     | 60 Subpart Da | 40CFR60.47a       | Emission monitoring   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.47a(a)    | Emission monitoring   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.47a(b)(2) | Emission monitoring   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.47a(b)(3) | Emission monitoring   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.47a(c)(1) | Emission monitoring   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.47a(d)    | Emission monitoring   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.47a(e)    | Emission monitoring   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.47a(f)    | Emission monitoring   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.47a(g)    | Emission monitoring   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.47a(h)    | Emission monitoring   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.47a(i)    | Emission monitoring   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.47a(j)    | Emission monitoring   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.48a       | Compliance determination procedures and methods.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.48a(a)    | Compliance determination procedures and methods.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.48a(b)    | Compliance determination procedures and methods.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.48a(c)    | Compliance determination procedures and methods.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.48a(d)    | Compliance determination procedures and methods.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.48a(e)    | Compliance determination procedures and methods.  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.49a       | Reporting requirements  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.49a(a)    | Reporting requirements  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.49a(b)    | Reporting requirements  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.49a(c)    | Reporting requirements  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.49a(d)    | Reporting requirements  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.49a(f)    | Reporting requirements  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.49a(g)    | Reporting requirements  |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.49a(h)    | Reporting requirements  |   |

## EU ID 032 : Cogen Boiler No. 3 Rule Applicability for Okeelanta Power L.P.

| APPLIC STAT    | RULE DESCRIP  | RULE NUMBER        | RULE TITLE   | RATIONALE FOR NON-APPLICABILITY   |
|----------------|---------------|--------------------|--|---|
| APPLICABLE     | 60 Subpart Da | 40CFR60.49a(i)     | Reporting requirements   |   |
| APPLICABLE     | 60 Subpart Da | 40CFR60.49a(j)     | Reporting requirements   |   |
| APPLICABLE     | 60 Subpart Ea | 40CFR60.50a(d)     | Standards of performance for municipal waste combustors  |   |
| APPLICABLE     | 60 Subpart Ea | 40CFR60.50b(j)     | Standards of performance for municipal waste combustors  |   |
| APPLICABLE     | 62-204        | 62-204.800(7)2.    | NSPS Subpart Da adopted by reference.  |   |
| APPLICABLE     | 62-296 <      | 62-296             | STATIONARY SOURCES - EMISSION STANDARDS  |   |
| APPLICABLE     | 62-296 <      | 62-296.405(2)      | Fossil Fuel Steam Generators with more than 250 million Btu per Hour Heat Input.                     |   |
| NON-APPLICABLE | 62-296 <      | 62-296.406         | Fossil Fuel Steam Generators with less than 250 Million Btu per Hour Heat Input, New and Existing Em | Cogen Boiler No. 3 has a heat input of > 250 MMBtu/hr.  |
| NON-APPLICABLE | 62-296 <      | 62-296.410         | Carbonaceous Fuel Burning Equipment.   | Not more stringent or different than NSPS.  |
| APPLICABLE     | 62-296 >      | 62-296.500         | Reasonably Available Control Technology (RACT) - Volatile Organic Compounds (VOC) and Nitrogen Oxide |   |
| APPLICABLE     | 62-296 >      | 62-296.500(2)(a)   | Reasonably Available Control Technology (RACT) - Volatile Organic Compounds (VOC) and Nitrogen Oxide |   |
| APPLICABLE     | 62-296 >      | 62-296.500(2)(c)   | Reasonably Available Control Technology (RACT) - Volatile Organic Compounds (VOC) and Nitrogen Oxide |   |
| APPLICABLE     | 62-296 >      | 62-296.570         | Reasonably Available Control Technology (RACT) - Requirements for Major VOC- and NOx-Emitting Facili |   |
| APPLICABLE     | 62-296 >      | 62-296.570(1)      | Applicability.   |   |
| APPLICABLE     | 62-296 >      | 62-296.570(1)(a)   | Applicability.   |   |
| APPLICABLE     | 62-296 >      | 62-296.570(2)      | Compliance Requirements.   |   |
| APPLICABLE     | 62-296 >      | 62-296.570(3)      | Operation Permit Requirements.   |   |
| APPLICABLE     | 62-296 >      | 62-296.570(4)      | Operation Permit Requirements.   |   |
| APPLICABLE     | 62-296 >      | 62-296.570(4)(a)   | Operation Permit Requirements.   |   |
| APPLICABLE     | 62-296 >      | 62-296.570(4)(b)6. | Operation Permit Requirements.   |   |
| APPLICABLE     | 62-296 >      | 62-296.570(4)(c)   | Operation Permit Requirements.   |   |
| APPLICABLE     | 62-296 >      | 62-296.620         |  |   |
| NON-APPLICABLE | 62-296 >      | 62-296.700         | Reasonably Available Control Technology (RACT) Particulate Matter.                                   | Okeelanta Power is located in Palm Beach County, which is not a nonattainment or maintenance area for particulate matter. |
| NON-APPLICABLE | 62-296 >      | 62-296.702         | Fossil Fuel Steam Generators.  | Okeelanta Power is located in Palm Beach County, which is not a nonattainment or maintenance area for particulate matter. |
| NON-APPLICABLE | 62-296 >      | 62-296.703         | Carbonaceous Fuel Burners.   | Okeelanta Power is located in Palm Beach County, which is not a nonattainment or maintenance area for particulate matter. |
| APPLICABLE     | 62-297        | 62-297             | STATIONARY SOURCES - EMISSIONS MONITORING  |   |
| APPLICABLE     | 62-297        | 62-297.310         | General Compliance Test Requirements.  |   |
| APPLICABLE     | 62-297        | 62-297.401         | Compliance Test Methods.   |   |
| APPLICABLE     | 62-297        | 62-297.401(1)(a)   | EPA Method 1 - Sample and Velocity Traverses for Stationary sources - 40 CFR 60 Appendix A.          |   |
| APPLICABLE     | 62-297        | 62-297.401(10)     | EPA Method 10 - Determination of Carbon Monoxide Emissions from Stationary Sources - 40 CFR 60 Appen |   |
| APPLICABLE     | 62-297        | 62-297.401(12)     | EPA Method 12 - Determination of Inorganic Lead Emissions from Stationary Sources - 40 CFR 60 Append |   |
| APPLICABLE     | 62-297        | 62-297.401(13)     | EPA Methods 13A and 13B.   |   |
| APPLICABLE     | 62-297        | 62-297.401(18)     | EPA Method 18 - Measurement of Gaseous Organic Compound Emissions by Gas Chromatography - 40 CFR 60  |   |
| APPLICABLE     | 62-297        | 62-297.401(19)     | EPA Method 19 - Determination of Sulfur Dioxide Removal Efficiency and Particulate, Sulfur Dioxide a |   |
| APPLICABLE     | 62-297        | 62-297.401(2)      | EPA Method 2 - Determination of Stack Gas Velocity and Volumetric Flow Rate - 40 CFR 60 Appendix A.  |   |

## EU ID 032 : Cogen Boiler No. 3 Rule Applicability for Okeelanta Power L.P.

| APPLIC STAT | RULE DESCRIP | RULE NUMBER      | RULE TITLE  | RATIONALE FOR NON-APPLICABILITY |
|-------------|--------------|------------------|---|---------------------------------|
| APPLICABLE  | 62-297       | 62-297.401(25)   | EPA Method 25 - Determination of Total Gaseous Nonmethane Organic Emissions as Carbon - 40 CFR 60 Ap  |                                 |
| APPLICABLE  | 62-297       | 62-297.401(3)    | EPA Method 3 - Gas Analysis for Carbon Dioxide, Oxygen, Excess Air, and Dry Molecular Weight - 40 CF  |                                 |
| APPLICABLE  | 62-297       | 62-297.401(32)   | EPA Method 101 - Determination of Particulate and Gaseous Mercury Emissions from Chlor-Alkali Plants  |                                 |
| APPLICABLE  | 62-297       | 62-297.401(35)   | EPA Method 104 - Determination of Beryllium Emissions from Stationary Sources - 40 CFR 61 Appendix B  |                                 |
| APPLICABLE  | 62-297       | 62-297.401(39)   | EPA Method 108 - Determination of Particulate and Gaseous Arsenic Emissions - 40 CFR 61 Appendix B.   |                                 |
| APPLICABLE  | 62-297       | 62-297.401(4)    | EPA Method 4 - Determination of Moisture Content in Stack Gases - 40 CFR 60 Appendix A.               |                                 |
| APPLICABLE  | 62-297       | 62-297.401(41)   | EPA Method 201 - Determination of PM10 Emissions (Exhaust Gas Recycle Procedure) - 40 CFR 51 Appendi  |                                 |
| APPLICABLE  | 62-297       | 62-297.401(5)    | EPA Method 5 - Determination of Particulate Emissions from Stationary Sources - 40 CFR 60 Appendix A  |                                 |
| APPLICABLE  | 62-297       | 62-297.401(6)    | EPA Method 6 - Determination of Sulfur Dioxide Emissions from Stationary Sources - 40 CFR 60 Appendi  |                                 |
| APPLICABLE  | 62-297       | 62-297.401(6)(c) | EPA Method 6C - Determination of Sulfur Dioxide Emissions from Stationary Sources - 40 CFR 60 Appendi |                                 |
| APPLICABLE  | 62-297       | 62-297.401(7)    | EPA Method 7 - Determination of Nitrogen Oxide Emissions from Stationary Sources - 40 CFR 60 Appendi  |                                 |
| APPLICABLE  | 62-297       | 62-297.401(7)(e) | EPA Method 7E - Determination of Nitrogen Oxide Emissions from Stationary Sources - 40 CFR 60 Appendi |                                 |
| APPLICABLE  | 62-297       | 62-297.401(8)    | EPA Method 8 - Determination of Sulfuric Acid Mist and Sulfur Dioxide Emissions from Stationary Sour  |                                 |
| APPLICABLE  | 62-297       | 62-297.401(9)    | EPA Test Method 9   |                                 |

**D. EMISSION POINT (STACK/VENT) INFORMATION**  
**(Regulated Emissions Units Only)**

**Emission Point Description and Type**

|  |  |  |  |
|--|--|--|--|
| 1. Identification of Point on Plot Plan or Flow Diagram? <b>BLR C</b>  |  | 2. Emission Point Type Code:<br><b>1</b>           |  |
| 3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking (limit to 100 characters per point): |  |  |  |
| 4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:                                    |  |  |  |
| 5. Discharge Type Code:<br><b>V</b>  | 6. Stack Height:<br><b>199 feet</b>                    | 7. Exit Diameter:<br><b>10.0 feet</b>              |  |
| 8. Exit Temperature:<br><b>295 °F</b>  | 9. Actual Volumetric Flow Rate:<br><b>246,000 acfm</b> | 10. Water Vapor:<br><b>%</b>                       |  |
| 11. Maximum Dry Standard Flow Rate:<br><b>dscfm</b>  |  | 12. Nonstack Emission Point Height:<br><b>feet</b> |  |
| 13. Emission Point UTM Coordinates:<br>Zone: East (km): North (km):  |  |  |  |
| 14. Emission Point Comment (limit to 200 characters):<br><br><b>Stack parameters based on biomass firing.</b>          |  |  |  |



**E. SEGMENT (PROCESS/FUEL) INFORMATION**  
(All Emissions Units)

**Segment Description and Rate:** Segment 1 of 5

|  |   |   |
|--|---|---|
| 1. Segment Description (Process/Fuel Type) (limit to 500 characters):<br><br><b>Electric Utility Boiler - Bagasse</b>  |   |   |
| 2. Source Classification Code (SCC):<br><b>10101101</b>  |   | 3. SCC Units:<br><b>Tons Burned (all solid fuels)</b> |
| 4. Maximum Hourly Rate:<br><b>97.865</b>   | 5. Maximum Annual Rate:<br><b>857,295</b> | 6. Estimated Annual Activity Factor:                  |
| 7. Maximum % Sulfur:<br><b>0.05</b>  | 8. Maximum % Ash:<br><b>1.0</b>           | 9. Million Btu per SCC Unit:<br><b>7.306</b>          |
| 10. Segment Comment (limit to 200 characters):<br><br><b>Total biomass all three boilers = 1,436,945 TPY based on 46.1% heat input from wood and 53.9% from bagasse.</b> |   |   |

**Segment Description and Rate:** Segment 2 of 5

|  |   |   |
|--|---|---|
| 1. Segment Description (Process/Fuel Type ) (limit to 500 characters):<br><br><b>Electric Utility Boiler - Wood Fired Boiler</b>   |   |   |
| 2. Source Classification Code (SCC):<br><b>10100903</b>  |   | 3. SCC Units:<br><b>Tons Burned (all solid fuels)</b> |
| 4. Maximum Hourly Rate:<br><b>79.374</b>   | 5. Maximum Annual Rate:<br><b>695,271</b> | 6. Estimated Annual Activity Factor:                  |
| 7. Maximum % Sulfur:<br><b>0.3</b>   | 8. Maximum % Ash:<br><b>9.0</b>           | 9. Million Btu per SCC Unit:<br><b>9.008</b>          |
| 10. Segment Comment (limit to 200 characters):<br><br><b>Total biomass all three boilers = 1,436,945 TPY based on 46.1% heat input from wood and 53.9% from bagasse.</b> |   |   |

**E. SEGMENT (PROCESS/FUEL) INFORMATION**  
(All Emissions Units)

**Segment Description and Rate:** Segment 3 of 5

|   |  |  |
|---|--|--|
| 1. Segment Description (Process/Fuel Type) (limit to 500 characters):<br><br><b>Electric Utility Boiler - Distillate Oil - Grades 1 and 2 Oil</b>   |  |  |
| 2. Source Classification Code (SCC):<br><b>10100501</b>   |  | 3. SCC Units:<br><b>Thousand Gallons Burned (all liquid fuels)</b> |
| 4. Maximum Hourly Rate:<br><b>3.551</b>   | 5. Maximum Annual Rate:<br><b>10,639</b> | 6. Estimated Annual Activity Factor:                               |
| 7. Maximum % Sulfur:<br><b>0.05</b>   | 8. Maximum % Ash:                        | 9. Million Btu per SCC Unit:<br><b>138</b>                         |
| 10. Segment Comment (limit to 200 characters):<br><br><b>Maximum annual rate represents 24.9% oil firing on a heat input basis. Total No. 2 fuel all three boilers = 19,533,086 gal/yr.</b> |  |  |

**Segment Description and Rate:** Segment 4 of 5

|  |  |   |
|--|--|---|
| 1. Segment Description (Process/Fuel Type ) (limit to 500 characters):<br><br><b>Electric Utility Boiler - Bituminous Coal - Spreader Stoker</b>   |  |   |
| 2. Source Classification Code (SCC):<br><b>10100204</b>  |  | 3. SCC Units:<br><b>Tons Burned (all solid fuels)</b> |
| 4. Maximum Hourly Rate:<br><b>20.417</b>   | 5. Maximum Annual Rate:<br><b>44,920</b> | 6. Estimated Annual Activity Factor:                  |
| 7. Maximum % Sulfur:<br><b>0.70</b>  | 8. Maximum % Ash:<br><b>3.70</b>         | 9. Million Btu per SCC Unit:<br><b>24</b>             |
| 10. Segment Comment (limit to 200 characters):<br><br><b>Maximum annual rate = 18.0% coal firing on a heat input basis. Total coal all three boilers = 44,920 TPY (9.6% coal burning on a heat input basis).</b> |  |   |

**E. SEGMENT (PROCESS/FUEL) INFORMATION  
(All Emissions Units)**

**Segment Description and Rate:** Segment 5 of 5

|   |   |  |
|---|---|--|
| 1. Segment Description (Process/Fuel Type) (limit to 500 characters):<br><br><b>Electric Utility Boiler – Natural Gas</b>   |   |  |
| 2. Source Classification Code (SCC):<br><b>10100601</b>   |   | 3. SCC Units:<br><b>MMscf Burned</b>         |
| 4. Maximum Hourly Rate:<br><b>0.605</b>   | 5. Maximum Annual Rate:<br><b>1,468</b> | 6. Estimated Annual Activity Factor:         |
| 7. Maximum % Sulfur:  | 8. Maximum % Ash:                       | 9. Million Btu per SCC Unit:<br><b>1,000</b> |
| 10. Segment Comment (limit to 200 characters):<br><br><b>Maximum annual rate represents 24.9% gas firing on a heat input basis. Total natural gas all three boilers = 2,696 MMscf/yr.</b> |   |  |

**Segment Description and Rate:** Segment      of     

|   |                         |                                      |
|---|-------------------------|--------------------------------------|
| 1. Segment Description (Process/Fuel Type) (limit to 500 characters): |                         |                                      |
| 2. Source Classification Code (SCC):                                  |                         | 3. SCC Units:                        |
| 4. Maximum Hourly Rate:   | 5. Maximum Annual Rate: | 6. Estimated Annual Activity Factor: |
| 7. Maximum % Sulfur:  | 8. Maximum % Ash:       | 9. Million Btu per SCC Unit:         |
| 10. Segment Comment (limit to 200 characters):                        |                         |                                      |

**F. EMISSIONS UNIT POLLUTANTS  
(All Emissions Units)**

| 1. Pollutant Emitted | 2. Primary Control Device Code | 3. Secondary Control Device Code | 4. Pollutant Regulatory Code |
|----------------------|--------------------------------|----------------------------------|------------------------------|
| PM                   | 076                            | 010                              | EL                           |
| PM <sub>10</sub>     | 076                            | 010                              | EL                           |
| SO <sub>2</sub>      |                                |                                  | EL                           |
| NO <sub>x</sub>      | 107                            |                                  | EL                           |
| CO                   |                                |                                  | EL                           |
| VOC                  |                                |                                  | EL                           |
| PB                   | 076                            | 010                              | EL                           |
| SAM                  |                                |                                  | EL                           |
| FL                   |                                |                                  | EL                           |
| H114                 | 048                            |                                  | EL                           |
| H021                 | 076                            | 010                              | EL                           |
|                      |                                |                                  |                              |
|                      |                                |                                  |                              |
|                      |                                |                                  |                              |
|                      |                                |                                  |                              |
|                      |                                |                                  |                              |
|                      |                                |                                  |                              |
|                      |                                |                                  |                              |
|                      |                                |                                  |                              |

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
**(Regulated Emissions Units -**  
**Emissions-Limited and Preconstruction Review Pollutants Only)**

**Potential/Fugitive Emissions**

|   |   |
|---|---|
| 1. Pollutant Emitted:<br><b>SO<sub>2</sub></b>  | 2. Total Percent Efficiency of Control:                       |
| 3. Potential Emissions:<br><b>588 lb/hour      696.0 tons/year</b>  | 4. Synthetically Limited? <input checked="" type="checkbox"/> |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1      [ ] 2      [ ] 3      _____ to _____ tons/year                              |   |
| 6. Emission Factor: <b>1.2 lb/MMBtu</b><br>Reference: <b>40 CFR 60 Subpart Da</b>   | 7. Emissions Method Code:<br><b>0</b>                         |
| 8. Calculation of Emissions (limit to 600 characters):<br><br><b>1.2 lb/MMBtu x 490 MMBtu/hr = 588.0 lb/hr</b>                      |   |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):<br><br><b>1,154.3 TPY total for all three boilers.</b> |   |

**Allowable Emissions** Allowable Emissions 1 of 3

|   |   |
|---|---|
| 1. Basis for Allowable Emissions Code:<br><b>OTHER</b>  | 2. Future Effective Date of Allowable Emissions:                                |
| 3. Requested Allowable Emissions and Units:<br><b>0.20 lb/MMBtu</b>   | 4. Equivalent Allowable Emissions:<br><b>143.0 lb/hour      313.2 tons/year</b> |
| 5. Method of Compliance (limit to 60 characters):<br><br><b>Continuous SO<sub>2</sub> monitor</b>   |   |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><br><b>Requested Allowable Emissions: 0.2 lb/MMBtu 24-hr avg; Annual-0.10 lb/MMBtu. Based on biomass firing.</b> |   |

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
**(Regulated Emissions Units -**  
**Emissions-Limited and Preconstruction Review Pollutants Only)**

**Potential/Fugitive Emissions**

|   |  |   |  |
|---|--|---|--|
| 1. Pollutant Emitted:<br><b>SO<sub>2</sub></b>  |  | 2. Total Percent Efficiency of Control: |  |
| 3. Potential Emissions:<br>lb/hour  |  | 4. Synthetically Limited? [ ]           |  |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year |  |   |  |
| 6. Emission Factor:<br>Reference:   |  | 7. Emissions Method Code:               |  |
| 8. Calculation of Emissions (limit to 600 characters):                                  |  |   |  |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):            |  |   |  |

**Allowable Emissions** Allowable Emissions 2 of 3

|  |  |  |  |
|--|--|--|--|
| 1. Basis for Allowable Emissions Code:<br><b>OTHER</b>   |  | 2. Future Effective Date of Allowable Emissions:                         |  |
| 3. Requested Allowable Emissions and Units:<br><b>1.20 lb/MMBtu</b>  |  | 4. Equivalent Allowable Emissions:<br><b>588 lb/hour 646.8 tons/year</b> |  |
| 5. Method of Compliance (limit to 60 characters):<br><b>Limit coal burning to 18.0% for any single boiler.</b>   |  |  |  |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><b>Basis for Allowable Emissions Code: NSPS. Based on coal firing</b> |  |  |  |

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
**(Regulated Emissions Units -**  
**Emissions-Limited and Preconstruction Review Pollutants Only)**

**Potential/Fugitive Emissions**

|  |  |
|--|--|
| 1. Pollutant Emitted:<br><b>SO<sub>2</sub></b>   | 2. Total Percent Efficiency of Control:            |
| 3. Potential Emissions:<br>lb/hour _____ tons/year _____   | 4. Synthetically Limited? <input type="checkbox"/> |
| 5. Range of Estimated Fugitive Emissions:<br><input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 _____ to _____ tons/year |  |
| 6. Emission Factor:<br>Reference:  | 7. Emissions Method Code:                          |
| 8. Calculation of Emissions (limit to 600 characters):   |  |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):   |  |

**Allowable Emissions** Allowable Emissions 3 of 3

|  |  |
|--|--|
| 1. Basis for Allowable Emissions Code:<br><b>RULE</b>  | 2. Future Effective Date of Allowable Emissions:                         |
| 3. Requested Allowable Emissions and Units:<br><b>0.05 lb/MMBtu</b>  | 4. Equivalent Allowable Emissions:<br><b>24.5 lb/hour 36.7 tons/year</b> |
| 5. Method of Compliance (limit to 60 characters):<br><b>Limit fuel oil burning to 24.9% for any single boiler.</b>                       |  |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><b>Based on No. 2 fuel oil firing and BACT.</b> |  |

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION  
(Regulated Emissions Units -  
Emissions-Limited and Preconstruction Review Pollutants Only)**

**Potential/Fugitive Emissions**

|  |  |   |  |
|--|--|---|--|
| 1. Pollutant Emitted:<br><b>CO</b>   |  | 2. Total Percent Efficiency of Control:                       |  |
| 3. Potential Emissions:<br><b>715</b> lb/hour <b>1096.3</b> tons/year  |  | 4. Synthetically Limited? <input checked="" type="checkbox"/> |  |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1      [ ] 2      [ ] 3      _____ to _____ tons/year   |  |   |  |
| 6. Emission Factor: <b>1 lb/MMBtu</b><br>Reference: <b>Boiler design</b>   |  | 7. Emissions Method Code:                                     |  |
| 8. Calculation of Emissions (limit to 600 characters):<br><br>$1.0 \text{ lb/MMBtu} \times 715 \text{ MMBtu/hr} = 715.0 \text{ lb/hr}$<br>$0.35 \text{ lb/MMBtu} \times 715 \text{ MMBtu/hr} \times 8,760 \text{ hr/yr} \div 2,000 \text{ lb/ton} = 1,096.3 \text{ TPY}$ |  |   |  |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):<br><br><b>1.0 lb/MMBtu as a 24-hr average; 0.35 lb/MMBtu as an annual average. Total for all three boilers = 2,012.5 TPY.</b>   |  |   |  |

**Allowable Emissions** Allowable Emissions 1 of 1

|   |  |  |  |
|---|--|--|--|
| 1. Basis for Allowable Emissions Code:<br><b>OTHER</b>  |  | 2. Future Effective Date of Allowable Emissions:                           |  |
| 3. Requested Allowable Emissions and Units:<br><b>0.35 lb/MMBtu</b>   |  | 4. Equivalent Allowable Emissions:<br><br>lb/hour <b>1,096.3</b> tons/year |  |
| 5. Method of Compliance (limit to 60 characters):<br><br><b>EPA Method 10 annually.</b>   |  |  |  |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><br><b>lb/MMBtu limit based on 12-month rolling average. All three boilers limited to 2,012.5 TPY.</b> |  |  |  |



**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
**(Regulated Emissions Units -**  
**Emissions-Limited and Preconstruction Review Pollutants Only)**

**Potential/Fugitive Emissions**

|  |   |   |
|--|---|---|
| 1. Pollutant Emitted:<br><b>SAM</b>  | 2. Total Percent Efficiency of Control: |   |
| 3. Potential Emissions:<br><b>17.6 lb/hour</b>   | <b>34.39 tons/year</b>                  | 4. Synthetically Limited? [ <input checked="" type="checkbox"/> ] |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year  |   |   |
| 6. Emission Factor: <b>0.036 lb/MMBtu</b><br>Reference: <b>Permit</b>  | 7. Emissions Method Code:               |   |
| 8. Calculation of Emissions (limit to 600 characters):<br><br><b>0.036 lb/MMBtu x 490 MMBtu/hr = 17.6 lb/hr</b>                                  |   |   |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):<br><br><b>Based on coal firing, 50.4 TPY total for all boilers.</b> |   |   |

**Allowable Emissions** Allowable Emissions 1 of 3

|   |   |  |
|---|---|--|
| 1. Basis for Allowable Emissions Code:<br><b>OTHER</b>  | 2. Future Effective Date of Allowable Emissions:                                |  |
| 3. Requested Allowable Emissions and Units:<br><b>0.036 lb/MMBtu</b>  | 4. Equivalent Allowable Emissions:<br><b>17.6 lb/hour</b> <b>19.4 tons/year</b> |  |
| 5. Method of Compliance (limit to 60 characters):<br><br><b>EPA Method 8 once every 5 years.</b>                          |   |  |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><br><b>Based on coal firing.</b> |   |  |

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION  
(Regulated Emissions Units -  
Emissions-Limited and Preconstruction Review Pollutants Only)**

**Potential/Fugitive Emissions**

|   |  |   |  |
|---|--|---|--|
| 1. Pollutant Emitted:<br><b>SAM</b>   |  | 2. Total Percent Efficiency of Control: |  |
| 3. Potential Emissions:<br>lb/hour  |  | 4. Synthetically Limited? [ ]           |  |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year |  |   |  |
| 6. Emission Factor:<br>Reference:   |  | 7. Emissions Method Code:               |  |
| 8. Calculation of Emissions (limit to 600 characters):                                  |  |   |  |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):            |  |   |  |

**Allowable Emissions** Allowable Emissions 2 of 3

|  |  |  |  |
|--|--|--|--|
| 1. Basis for Allowable Emissions Code:<br><b>OTHER</b>   |  | 2. Future Effective Date of Allowable Emissions:                         |  |
| 3. Requested Allowable Emissions and Units:<br><b>0.012 lb/MMBtu</b>   |  | 4. Equivalent Allowable Emissions:<br><b>8.6 lb/hour 19.10 tons/year</b> |  |
| 5. Method of Compliance (limit to 60 characters):<br><b>EPA Method 8 once every 5 years</b>                              |  |  |  |
| 6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):<br><b>Based on biomass firing.</b> |  |  |  |

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION**  
**(Regulated Emissions Units -**  
**Emissions-Limited and Preconstruction Review Pollutants Only)**

**Potential/Fugitive Emissions**

|   |   |
|---|---|
| 1. Pollutant Emitted:<br><b>SAM</b>   | 2. Total Percent Efficiency of Control: |
| 3. Potential Emissions:<br>lb/hour _____ tons/year _____                                | 4. Synthetically Limited? [ ]           |
| 5. Range of Estimated Fugitive Emissions:<br>[ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year |   |
| 6. Emission Factor:<br>Reference:   | 7. Emissions Method Code:               |
| 8. Calculation of Emissions (limit to 600 characters):                                  |   |
| 9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):            |   |

**Allowable Emissions** Allowable Emissions 3 of 3

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

**H. VISIBLE EMISSIONS INFORMATION**  
(Only Regulated Emissions Units Subject to a VE Limitation)

**Visible Emissions Limitation:** Visible Emissions Limitation 1 of 1

|  |  |
|--|--|
| 1. Visible Emissions Subtype:<br><b>VE20</b>   | 2. Basis for Allowable Opacity:<br><input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other |
| 3. Requested Allowable Opacity:<br>Normal Conditions: <b>20 %</b> Exceptional Conditions: <b>27 %</b><br>Maximum Period of Excess Opacity Allowed: <b>6 min/hour</b> |  |
| 4. Method of Compliance:<br><b>EPA Method 9</b>  |  |
| 5. Visible Emissions Comment (limit to 200 characters):<br><br><b>40 CFR 60, Subpart Da.</b>   |  |

**I. CONTINUOUS MONITOR INFORMATION**  
(Only Regulated Emissions Units Subject to Continuous Monitoring)

**Continuous Monitoring System:** Continuous Monitor 1 of 5

|  |   |
|--|---|
| 1. Parameter Code: <b>VE</b>   | 2. Pollutant(s):  |
| 3. CMS Requirement:  | <input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other |
| 4. Monitor Information:<br>Manufacturer: <b>Durag</b><br>Model Number: <b>D-R281-31-AV</b> Serial Number: <b>31019</b> |   |
| 5. Installation Date:<br><b>01-Oct-1995</b>  | 6. Performance Specification Test Date:                                 |
| 7. Continuous Monitor Comment (limit to 200 characters):<br><br><b>40 CFR 60, Subpart Da</b>                           |   |

**H. VISIBLE EMISSIONS INFORMATION**  
**(Only Regulated Emissions Units Subject to a VE Limitation)**

**Visible Emissions Limitation:** Visible Emissions Limitation \_\_\_\_\_ of \_\_\_\_\_

|   |   |
|---|---|
| 1. Visible Emissions Subtype:   | 2. Basis for Allowable Opacity:<br>[ ] Rule [ ] Other |
| 3. Requested Allowable Opacity:<br>Normal Conditions: _____ % Exceptional Conditions: _____ %<br>Maximum Period of Excess Opacity Allowed: _____ min/hour |   |
| 4. Method of Compliance:  |   |
| 5. Visible Emissions Comment (limit to 200 characters):   |   |

**I. CONTINUOUS MONITOR INFORMATION**  
**(Only Regulated Emissions Units Subject to Continuous Monitoring)**

**Continuous Monitoring System:** Continuous Monitor 2 of 5

|  |  |
|--|--|
| 1. Parameter Code: <b>EM</b>   | 2. Pollutant(s): <b>NO<sub>x</sub></b>                 |
| 3. CMS Requirement:  | [ <input checked="" type="checkbox"/> ] Rule [ ] Other |
| 4. Monitor Information:<br>Manufacturer: <b>Thermo Environmental Instruments</b><br>Model Number: <b>42D</b> Serial Number: <b>42D-52618-292</b> |  |
| 5. Installation Date:<br><b>01-Oct-1995</b>  | 6. Performance Specification Test Date:                |
| 7. Continuous Monitor Comment (limit to 200 characters):<br><br><b>40 CFR 60, Subpart Da</b>   |  |

**H. VISIBLE EMISSIONS INFORMATION**  
**(Only Regulated Emissions Units Subject to a VE Limitation)**

**Visible Emissions Limitation:** Visible Emissions Limitation \_\_\_\_\_ of \_\_\_\_\_

|   |   |
|---|---|
| 1. Visible Emissions Subtype:   | 2. Basis for Allowable Opacity:<br>[ ] Rule [ ] Other |
| 3. Requested Allowable Opacity:<br>Normal Conditions: _____ % Exceptional Conditions: _____ %<br>Maximum Period of Excess Opacity Allowed: _____ min/hour |   |
| 4. Method of Compliance:  |   |
| 5. Visible Emissions Comment (limit to 200 characters):   |   |

**I. CONTINUOUS MONITOR INFORMATION**  
**(Only Regulated Emissions Units Subject to Continuous Monitoring)**

**Continuous Monitoring System:** Continuous Monitor 3 of 5

|  |   |
|--|---|
| 1. Parameter Code: <b>EM</b>   | 2. Pollutant(s): <b>SO<sub>2</sub></b>  |
| 3. CMS Requirement: [ ] Rule [ <b>X</b> ] Other  |   |
| 4. Monitor Information:<br>Manufacturer: <b>Thermo Environmental Instruments</b><br>Model Number: <b>43B</b> Serial Number: <b>43B-51400-292</b> |   |
| 5. Installation Date:<br><b>01-Oct-1995</b>  | 6. Performance Specification Test Date: |
| 7. Continuous Monitor Comment (limit to 200 characters):<br><br><b>40 CFR 60, Subpart Da</b>   |   |

**H. VISIBLE EMISSIONS INFORMATION**  
**(Only Regulated Emissions Units Subject to a VE Limitation)**

**Visible Emissions Limitation:** Visible Emissions Limitation \_\_\_\_\_ of \_\_\_\_\_

|   |   |
|---|---|
| 1. Visible Emissions Subtype:   | 2. Basis for Allowable Opacity:<br>[ ] Rule [ ] Other |
| 3. Requested Allowable Opacity:<br>Normal Conditions: _____ % Exceptional Conditions: _____ %<br>Maximum Period of Excess Opacity Allowed: _____ min/hour |   |
| 4. Method of Compliance:  |   |
| 5. Visible Emissions Comment (limit to 200 characters):   |   |

**I. CONTINUOUS MONITOR INFORMATION**  
**(Only Regulated Emissions Units Subject to Continuous Monitoring)**

**Continuous Monitoring System:** Continuous Monitor  4  of  5

|  |   |
|--|---|
| 1. Parameter Code: <b>EM</b>   | 2. Pollutant(s): <b>CO</b>              |
| 3. CMS Requirement: [ ] Rule [ <b>X</b> ] Other  |   |
| 4. Monitor Information:<br>Manufacturer: <b>Thermo Environmental Instruments</b><br>Model Number: <b>48</b> Serial Number: <b>48-45334-273</b> |   |
| 5. Installation Date:<br><b>01-Oct-1995</b>  | 6. Performance Specification Test Date: |
| 7. Continuous Monitor Comment (limit to 200 characters):   |   |

**H. VISIBLE EMISSIONS INFORMATION**  
**(Only Regulated Emissions Units Subject to a VE Limitation)**

**Visible Emissions Limitation:** Visible Emissions Limitation \_\_\_\_\_ of \_\_\_\_\_

|   |   |
|---|---|
| 1. Visible Emissions Subtype:   | 2. Basis for Allowable Opacity:<br>[ ] Rule [ ] Other |
| 3. Requested Allowable Opacity:<br>Normal Conditions: _____ % Exceptional Conditions: _____ %<br>Maximum Period of Excess Opacity Allowed: _____ min/hour |   |
| 4. Method of Compliance:  |   |
| 5. Visible Emissions Comment (limit to 200 characters):   |   |

**I. CONTINUOUS MONITOR INFORMATION**  
**(Only Regulated Emissions Units Subject to Continuous Monitoring)**

**Continuous Monitoring System:** Continuous Monitor  5  of  5

|  |  |
|--|--|
| 1. Parameter Code:   | 2. Pollutant(s): <b>O<sub>2</sub></b>                  |
| 3. CMS Requirement:  | [ <input checked="" type="checkbox"/> ] Rule [ ] Other |
| 4. Monitor Information:<br>Manufacturer: <b>Yokogawa</b><br>Model Number: <b>ZA8C</b> Serial Number: <b>JJ113MA345</b> |  |
| 5. Installation Date:<br><b>01-Oct-1995</b>  | 6. Performance Specification Test Date:                |
| 7. Continuous Monitor Comment (limit to 200 characters):<br><br><b>40 CFR 60, Subpart Da</b>                           |  |



**J. EMISSIONS UNIT SUPPLEMENTAL INFORMATION  
(Regulated Emissions Units Only)**

**Supplemental Requirements**

|  |
|--|
| 1. Process Flow Diagram<br><input checked="" type="checkbox"/> Attached, Document ID: <u>OC-FI-C3</u> [ ] Not Applicable [ ] Waiver Requested  |
| 2. Fuel Analysis or Specification<br><input checked="" type="checkbox"/> Attached, Document ID: <u>OC-EU1-J2</u> [ ] Not Applicable [ ] Waiver Requested   |
| 3. Detailed Description of Control Equipment<br><input checked="" type="checkbox"/> Attached, Document ID: <u>OC-EU1-J3</u> [ ] Not Applicable [ ] Waiver Requested                                      |
| 4. Description of Stack Sampling Facilities<br><input type="checkbox"/> Attached, Document ID: _____ [ <input checked="" type="checkbox"/> ] Not Applicable [ ] Waiver Requested                         |
| 5. Compliance Test Report<br><input type="checkbox"/> Attached, Document ID: _____<br><input type="checkbox"/> Previously submitted, Date: _____<br><input checked="" type="checkbox"/> Not Applicable   |
| 6. Procedures for Startup and Shutdown<br><input type="checkbox"/> Attached, Document ID: _____ [ <input checked="" type="checkbox"/> ] Not Applicable [ ] Waiver Requested                              |
| 7. Operation and Maintenance Plan<br><input type="checkbox"/> Attached, Document ID: _____ [ <input checked="" type="checkbox"/> ] Not Applicable [ ] Waiver Requested                                   |
| 8. Supplemental Information for Construction Permit Application<br><input checked="" type="checkbox"/> Attached, Document ID: <u>Attachment A</u> [ <input checked="" type="checkbox"/> ] Not Applicable |
| 9. Other Information Required by Rule or Statute<br><input type="checkbox"/> Attached, Document ID: _____ [ <input checked="" type="checkbox"/> ] Not Applicable   |
| 10. Supplemental Requirements Comment:<br><br><br><br><br><br><br><br><br><br>   |

**Additional Supplemental Requirements for Title V Air Operation Permit Applications**

|   |
|---|
| 11. Alternative Methods of Operation<br><input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable  |
| 12. Alternative Modes of Operation (Emissions Trading)<br><input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable  |
| 13. Identification of Additional Applicable Requirements<br><input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable  |
| 14. Compliance Assurance Monitoring Plan<br><input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable  |
| 15. Acid Rain Part Application (Hard-copy Required)<br><input type="checkbox"/> Acid Rain Part - Phase II (Form No. 62-210.900(1)(a))<br>Attached, Document ID: _____<br><input type="checkbox"/> Repowering Extension Plan (Form No. 62-210.900(1)(a)1.)<br>Attached, Document ID: _____<br><input type="checkbox"/> New Unit Exemption (Form No. 62-210.900(1)(a)2.)<br>Attached, Document ID: _____<br><input type="checkbox"/> Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)<br>Attached, Document ID: _____<br><input type="checkbox"/> Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.)<br>Attached, Document ID: _____<br><input type="checkbox"/> Phase NOx Averaging Plan (Form No. 62-210.900(1)(a)5.)<br>Attached, Document ID: _____<br><input checked="" type="checkbox"/> Not Applicable |

**ATTACHMENT A**

**PSD REPORT**

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Appendix

## 1.0 INTRODUCTION

Okeelanta Power Limited Partnership (OkPLP) operates a 74.9 megawatt electric (MWe) cogeneration facility located adjacent to the Okeelanta Corporation sugar mill, approximately 6 miles south of South Bay in Palm Beach County, Florida. The facility combusts primarily biomass (bagasse and wood) in three steam boilers to generate steam and electricity. The cogeneration facility also supplies the adjacent sugar mill with process steam during the sugar cane grinding season, approximately October through March, as well as the associated sugar refinery with process steam year around.

Construction was completed on the facility in 1995, and initial operations began in late 1995. However, the facility was operated at less than design capacity during 1996-1998. The facility operated normally during calendar year 1999.

All fuel burned in the facility boilers has been bagasse, wood and No. 2 fuel oil. Only a relatively small amount of No. 2 fuel oil has been combusted, with the majority of fuel combusted being bagasse and wood.

The OkPLP facility is operating under state construction permit (AC50-219413) and federal PSD permit (PSD-FL-196). The original permits were issued to OkPLP on September 27, 1993. The original permits have been modified several times. The latest amendment was permit no. 0990332-011-AC/PSD-FL-196K, issued October 31, 2000. This permit amended the provisions related to simultaneous operation of the OkPLP cogeneration boilers and the Okeelanta sugar mill boilers. OkPLP has recently requested approval to burn natural gas as a supplemental fuel, and the Department has given notice of its intent to approve this request (draft permit no. 0990332-013-AC; PSD-FL-196L, issued December 1, 2000).

The OkPLP facility boilers currently have emission limits for several pollutants, including carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), and sulfuric acid mist (SAM). OkPLP operates continuous emission monitoring systems (CEMS) to measure CO and

SO<sub>2</sub> emissions in the flue gases of each of the three cogeneration boilers. The emission limit for CO is 0.35 lb/MMBtu based on a 30-day rolling average. In late 1999, after an unusually wet fall, the 30-day rolling average emission limit was exceeded on the boilers. Since the excursions appear to be related to abnormally high moisture content fuel due to rainfall, and beyond the control of OkPLP, a change in the averaging time associated with the CO limit is indicated. Thus, OkPLP is requesting to change to a 12-month rolling average limit for CO. The requested changes in the CO permit limit will not increase total permitted annual CO emissions to the atmosphere.

The boilers have several limits for SO<sub>2</sub>. For wood firing, the limits are 0.10 lb/MMBtu as a 24-hour average, and 0.05 lb/MMBtu as a 30-day rolling average. For bagasse firing, the limits are 0.10 lb/MMBtu as a 24-hour average, and 0.02 lb/MMBtu as a 30-day rolling average. In recent months, there have been several excursions of both the 24-hour average limit and the 30-day rolling average SO<sub>2</sub> emission limits. The reasons for this are believed to be variability in fuel sulfur content as well as the recent installation of the mechanical dust collectors on each boiler. As a result, OkPLP is requesting SO<sub>2</sub> emission limits for both wood and bagasse be increased to 0.20 lb/MMBtu for the 24-hour averaging time, and to 0.10 lb/MMBtu for the 30-day rolling average. An associated increase in the emission limit for SAM to 0.012 lb/MMBtu is also requested.

Permitted short-term SO<sub>2</sub> and SAM emissions due to biomass firing will increase. Permitted annual SO<sub>2</sub> emissions for the facility as a whole will not increase, because the permitted amount of coal burning will be reduced to offset the increase in SO<sub>2</sub> emissions due to burning biomass. This will in turn lower permitted emissions of fluorides. Permitted lead emissions will increase slightly due to the assumption of greater amounts of wood versus bagasse being burned, based on actual historical operation of the OkPLP facility.

Actual annual CO, SO<sub>2</sub>, SAM and lead emissions may increase as a result of this request. The increase in actual annual CO, SO<sub>2</sub> and SAM emissions, based on the comparison

between current actual emissions and future potential emissions, are above the PSD significant emission rates. Therefore, the changes require PSD new source review.

This report presents a description of the proposed emission limit changes, and the rational and supporting information for such changes. A complete description of the requested changes, including air emission rates, is presented in Section 2.0. The air quality review requirements for the project and new source review applicability are discussed in Section 3.0. The control technology evaluation required by PSD rules is presented in Section 4.0. A discussion of air quality impacts is presented in Section 5.0. Supportive information is contained in the appendices.



## 2.0 PROJECT DESCRIPTION

### 2.1 GENERAL

OkPLP operates a 74.9 megawatt electric (MWe) cogeneration facility located adjacent to the Okeelanta Corporation sugar mill, approximately 6 miles south of South Bay in Palm Beach County, Florida. The facility is currently operating under state construction permit no. AC50-219413 and federal PSD permit (PSD-FL-196). The original permits were issued to OkPLP on September 27, 1993. The original permits have been modified several times. The latest amendment was permit no. 0990332-011-AC/PSD-FL-196K, issued October 31, 2000. This permit amended the provisions related to simultaneous operation of the OkPLP cogeneration boilers and the Okeelanta sugar mill boilers.

Construction was completed on the facility in 1995, and initial operations began in late 1995. However, the facility was operated at less than design capacity during 1996-1998. The facility operated normally during calendar year 1999. Calendar year 2000 operation has been somewhat abnormal in that the boilers have experienced downtime due to installation of mechanical dust collectors on each boiler.

The facility combusts biomass (bagasse and wood) and fuel oil in three steam boilers to generate steam and electricity. OKPLP recently requested approval to burn natural gas as a supplemental fuel, and the Department has given notice of its intent to approve this request (Draft Permit No. 0990332-013-AC; PSD-FL-196L). Current plans are to retrofit the boilers with natural gas burners in the summer of 2001.

Each boiler is capable of producing up to an average of 455,418 lbs/hr steam. The cogeneration facility also supplies the adjacent sugar mill with process steam during the sugar cane grinding season, approximately October through March, as well as the associated sugar refinery with process steam year around. The fuel burned in the facility boilers to date has been primarily bagasse and wood. Only a relatively small amount of No. 2 fuel oil has been combusted.

The construction permit limits the maximum heat input to each of the three boilers to 715 million British thermal units per hour (MMBtu/hr) when firing biomass, and 490 MMBtu/hr when firing fossil fuels (No. 2 fuel oil or low sulfur coal). Maximum annual heat input to the entire facility is limited to  $11.5 \times 10^{12}$  Btu/yr. Maximum annual coal burning for the entire facility is limited to 69,720 tons during any 12 month period.

Air pollution control equipment serving each boiler consists of mechanical dust collectors and an electrostatic precipitator (ESP) to control particulate matter (PM) and heavy metal emissions, a selective non-catalytic reduction (SNCR) system for the control of NO<sub>x</sub> emissions, and a carbon injection system for mercury control.

A regional map showing the location of the site is presented in Attachment OC-FI-C1 of the application form. A plot plan of the OkPLP cogeneration facility is presented in Attachment OC-FI-C2 of the application form.

## **2.2 REVISIONS TO PERMITTED BOILER EMISSION LIMITS**

The changes to the facility emission limits now being proposed by OkPLP consist of the following:

1. Revising the averaging time associated with the CO emission limit from a 30-day rolling average to a 12-month rolling average.
2. Revising the emission limits for SO<sub>2</sub> from biomass (bagasse and wood) to 0.20 lb/MMBtu, 24-hour average, and 0.10 lb/MMBtu, 30-day rolling average.
3. In order to retain the current annual ton per year emission limit for SO<sub>2</sub>, the maximum permitted annual amount of coal burning will be reduced.
4. Revising the emission limits for SAM from biomass to 0.012 lb/MMBtu, due to the change in SO<sub>2</sub> emission limits.
5. Revising the annual lead emission limit upwards to account for changes in the percentages of wood burned.
6. Revising the fluoride emission limit downward to account for less coal burning.

A more complete description of these changes as well as the rationale for the changes is presented below.

### 2.2.1 CARBON MONOXIDE

The current limit for CO emissions from biomass burning is 0.35 lb/MMBtu based on a 30-day rolling average. The 30-day rolling average was established on June 22, 1999, based on the operational history of the boilers and the CEMs which showed variability in CO emissions due to the nature of the biomass fuels burned at the facility. OkPLP had requested an increase in the numerical emission limit to 0.50 lb/MMBtu, but the FDEP denied this request.

In late 1999, excursions of the 0.35 lb/MMBtu, 30-day rolling average limit, were experienced in Boilers A, B, and C. These excursions followed shortly after several very significant rainfall events at the facility. It is believed that the cause of these excursions was higher moisture content of the biomass fuel due to these rainfall events. All of the wood fuel, and a portion of the bagasse fuel burned at the facility is stored in outside storage piles. The remaining portion of the bagasse fuel is conveyed from the adjacent sugar mill directly to the boilers. At the time of the excursions, and prior to the excursions, primarily wood fuel was burned in the boilers.

To illustrate the potential affects of rainfall on CO emissions, plots of monthly rainfall amounts versus the monthly average CO emission rate (in lb/MMBtu) from April 1998 through October 2000 for Units A, B, and C are shown in Figures 2-1, 2-2 and 2-3, respectively. Monthly rainfall amounts were obtained from the Belle Glade Experimental Station. The CO emissions represent the monthly average CO emission rate over all operating hours for the month.

The plots show a frequent increase in CO emissions in the months with large rainfall amounts, and/or in the months immediately following. For example, for the time period of May 1999 through October 1999, average monthly rainfall was about 8 inches per

month. Each unit shows an increase in CO emissions through this period and a peak in emissions in the months following the heavy rainfall months (due to the accumulation of moisture in the biomass fuel pile).

These plots also show that in months with lower rainfall, OkPLP is typically well within the 30-day rolling average CO limit of 0.35 lb/MMBtu. A 12-month rolling average emissions limit for CO is sought to allow for potentially higher emissions which may be experienced during and following months of heavy rainfall. It is requested, based on this information, that the current CO permit limit for the boilers be revised to be based on a 12-month rolling average, to replace the current limit based on a 30-day rolling average. No change is requested in the current annual emission limit for the OkPLP facility of 2,012.5 TPY for all three boilers combined. In order to be consistent, it is requested that the averaging time for the CO limits for biomass, No. 2 fuel oil, natural gas, and coal all be specified as a 12-month rolling average.

### **2.2.2 SULFUR DIOXIDE**

The current permit limits for SO<sub>2</sub> emissions from wood fuel firing are 0.10 lb/MMBtu for a 24-hour average, and 0.05 lb/MMBtu as a 30-day rolling average. The current permit limits for SO<sub>2</sub> emissions from bagasse fuel firing are 0.10 lb/MMBtu for a 24-hour average, and 0.02 lb/MMBtu as a 30-day rolling average. The current annual ton per year emission limit for SO<sub>2</sub> is 1,154.3 tons per year (TPY).

It is noted that the state air construction permit and PSD permit issued to OkPLP allowed revision of the annual average SO<sub>2</sub> emission limits for wood and bagasse, following the first two years of semi-annual stack testing (refer to Specific Conditions No. 20 and 24).

In recent months, excursions of both the 24-hour average and the 30-day rolling average SO<sub>2</sub> limits have been experienced at the facility. Therefore, an investigation into the causes of the higher SO<sub>2</sub> emissions was undertaken. Two factors were believed to be responsible for this increase in SO<sub>2</sub> emissions:

- Changes to the boiler and or control system that might affect SO<sub>2</sub> emissions.
- Changes in the wood fuel quality.

These factors are discussed in more detail in remainder of this section.

The only changes to the boilers or air emission control system at the facilities this year were the installation of the mechanical dust collectors on each boiler. However, this change is believed to have affected SO<sub>2</sub> emissions due to the nature of SO<sub>2</sub> removal inherent in the system, as described below.

SO<sub>2</sub> removal in the OkPLP boiler/control device system occurs due to the alkaline nature of wood and bagasse ash. Such removal has been documented previously by OkPLP (refer to a 1997 application to revise OkPLP's emission limits), by other bagasse boilers, and by wood fired boilers in the pulp and paper industry. SO<sub>2</sub>, generated in the boiler due to sulfur in the biomass fuels, is absorbed by the alkaline fly ash as it contacts the ash particles within and downstream of the boiler. The amount of SO<sub>2</sub> absorption is dependent on several factors, including ratio of SO<sub>2</sub> to ash, and the time the SO<sub>2</sub> and ash have to react. The lower the SO<sub>2</sub>/ash ratio and the longer the reaction time, the greater the SO<sub>2</sub> absorption.

Prior to the installation of the mechanical dust collectors at OkPLP, the effective reaction time was longer since the flue gases traversed a longer length of ductwork prior to the ash being removed in the ESP. The new dust collectors were installed immediately following the boiler air preheater. Based on ash generation, the dust collectors are removing about 80 percent of the particulate matter in the flue gases. Therefore, the effective contact time between the ash and the flue gases has been decreased significantly, since a majority of the ash is now removed well prior to the ESP. This results in lower inherent SO<sub>2</sub> removal.

Biomass fuel characteristics could also affect SO<sub>2</sub> emissions. Therefore, historic fuel analysis data were analyzed. OkPLP performs biomass sampling and analysis in

conjunction with its compliance testing. OkPLP also obtains fuel analysis data on the biomass fired in the boilers on a routine basis.

Historical daily SO<sub>2</sub> emissions (in lb/MMBtu from the CEMs) for Boilers A, B, and C are shown for the period June 1999 through October 2000 in Figures 2-4, 2-5, and 2-6, respectively. For all three boilers, the data show an upwards trend beginning in February 2000. This was due to a change in the ratio of bagasse and wood burned. Beginning in February 2000, based on historical operating experience, OkPLP began to burn a mix of wood/bagasse typically in about a 44/55 ratio. Prior to this time, OkPLP would burn about 80 percent bagasse/20 percent wood during the sugar cane processing season, and about 20 percent bagasse/80 percent wood during the off-season. During the present sugar cane crop, OkPLP is typically burning 30 percent wood/70 percent bagasse.

The installation dates for the mechanical dust collectors for each boiler are also shown in Figures 2-4 through 2-6. For Boiler B, not enough post-installation data are available to render any conclusions. For Boiler A, the SO<sub>2</sub> emissions due appear to be higher than during any previous period, although the emissions drop off to pre-installation levels during October 2000. Boiler C provides the greatest amount of post-installation data. During June and July 2000, just after dust collector installation, the SO<sub>2</sub> emissions were much higher than any previous period, while falling to closer to pre-installation levels during August and September 2000. These data indicate that the dust collectors potentially had an effect upon SO<sub>2</sub> absorption in the system, although the data are not conclusive.

Historical sulfur fuel analysis data from OkPLP is shown in Tables A and B in the appendix. These data are summarized in terms of potential SO<sub>2</sub> emissions (lb/MMBtu) in Figures 2-7 and 2-8 for bagasse fuel and wood fuel, respectively. The sulfur analysis for bagasse are limited to two time periods: late December 1999 through early February 2000; and December 1999. The data shown in Figure 2-7 indicate little variability in the

potential SO<sub>2</sub> emissions due to bagasse fuel, as well as little difference for the two time periods.

The sulfur analysis for wood covers a broader time period: early January 2000 through early February 2000; late December 1999 through early January 2000; and periodic analysis from April 2000 through October 2000. The data shown in Figure 2-8 indicate greater variability in the potential SO<sub>2</sub> emissions due to wood fuel. The data also indicate that beginning in August 2000 relatively high sulfur contents were experienced much more frequently compared to previous data.

Another method to analyze potential dust collector influence is to calculate the theoretical SO<sub>2</sub> removal efficiency for periods when biomass fuel analysis data are available. Presented in Figures 2-9 through 2-11 is the theoretical SO<sub>2</sub> removal efficiencies for each boiler plotted versus time. The efficiencies were calculated based on the fuel analysis for a particular day (usually taken during stack tests) and the average daily SO<sub>2</sub> emission rate as recorded by the CEMs. The detailed data are presented in Table C in the appendix.

As shown in the figures, significant SO<sub>2</sub> removal occurs within the boiler and air pollution control system, typically between 90 and 99 percent. For Boilers A and B, not enough post-dust collector installation data is available to draw any conclusions. For Boiler C, the data do not indicate a difference between the pre- and post- dust collector installation SO<sub>2</sub> removal efficiency, although the lowest daily removal efficiencies were experienced after the dust collector installations (i.e., less than 90 percent removal).

In conclusion, it is not clear as to the specific causes of the higher SO<sub>2</sub> emissions being experienced recently at OkPLP. Higher fuel sulfur contents have been experienced more frequently in recent months, but more fuel analysis data is available compared to previous periods.

SO<sub>2</sub> emissions from OkPLP's CEMs, discussed previously, have ranged up to 0.12 lb/MMBtu, 24-hour daily average. The highest 30-day rolling average SO<sub>2</sub> emission rate experienced to date has been 0.6 lb/MMBtu. In order to provide an adequate margin of safety for future operation, considering potential variability in the sulfur content of the fuels and in the inherent SO<sub>2</sub> absorption, the following is proposed:

1. A maximum 24-hour daily average SO<sub>2</sub> limit of 0.20 lb/MMBtu for both bagasse and wood, and
2. A 30-day rolling average SO<sub>2</sub> emission limit of 0.10 lb/MMBtu for both bagasse and wood.

Identical limits for bagasse and wood is desirable from a tracking standpoint, since OkPLP's normal mode of operation will be to burn a combination of wood and bagasse throughout the year. This will make tracking and determining compliance with the limits much simpler.

A related change OkPLP is proposing is to change the estimated ratio of wood to bagasse fuel burned at the facility on an annual basis. Previous annual emission estimates have been based on the assumption of 60 percent bagasse/40 percent wood burned on an annual basis. Based on historical operation, and since wood firing produced higher emission for several pollutants, compared to bagasse firing, OkPLP is changing the basis of the annual emissions to a 50/50 mix of wood and bagasse. Revised annual fuel usage, heat input, and emissions are provided in Tables 2-2 through 2-5.

In order to retain the current annual SO<sub>2</sub> emission limit for the facility of 1,154.3 TPY, it is proposed to reduce the current permitted amount of coal that can be burned from 69,720 TPY to 44,920 TPY. This will affect annual emissions for several pollutants.

### **2.2.3 SULFURIC ACID MIST**

Emissions of SAM result from SO<sub>2</sub> emissions. Therefore, it is appropriate to increase the permitted SAM emission limit commensurate with the increase in SO<sub>2</sub> emissions. Maximum potential SAM emissions are estimated on the basis of EPA Publication AP-42, which for fuel oil firing indicates that approximately 5 percent of SO<sub>2</sub> becomes SO<sub>3</sub> in the



stack gas. The  $\text{SO}_3$  is then converted to  $\text{H}_2\text{SO}_4$  on the basis of molecular weights. The proposed SAM emission limit is therefore calculated as follows:

$$0.20 \text{ lb/MMBtu } \text{SO}_2 \times 0.05 \times 98/80 = 0.012 \text{ lb/MMBtu}$$

### **2.3 EMISSION RATES FOR REGULATED POLLUTANTS**

Proposed maximum short-term emissions of CO,  $\text{SO}_2$  and SAM for the OkPLP boilers are presented in Table 2-1. This table reflects the proposed  $\text{SO}_2$ , CO and SAM emission limits for biomass firing, as well as the current limits for No. 2 fuel oil and coal firing, which are not changing except for the averaging time associated with the CO emission limit.

The revised annual fuel usage and heat input rates, per boiler and for the combined operation of all three boilers, is shown in Tables 2-2 and 2-3, respectively. Note that the total annual fuel usage estimates, shown in Table 2-2, are based on 53.9 percent bagasse and 46.1 percent wood (instead of a 50/50 ratio) in order to estimate the maximum amount of total biomass which could be burned.

The maximum annual emissions per boiler for each fuel scenario, incorporating the revised emission limits, reduced coal firing and revised bagasse/wood ratio, are presented in Table 2-4. The combined maximum annual emissions for all three boilers are shown in Table 2-5. The maximum annual emissions for all of the criteria/designated pollutants are the same as currently permitted, except for the case of lead, fluorides and SAM. For Pb, annual emissions are slightly higher than currently permitted due to the assumption of greater amounts of wood versus bagasse being burned. Fluorides emissions are reduced due to the reduction in the amount of coal that can be burned. SAM emissions are increased due to the increase in  $\text{SO}_2$  emissions from biomass.

### **2.4 ADDITIONAL REQUESTED CHANGES**

The current construction permit for OkPLP requires that levels of chromium, copper and arsenic in the wood fuel not exceed specified levels (refer to Specific Condition 12 of the

construction permit). In addition, Specific Condition 24 of the permit requires that semi-annual stack testing be performed for chromium, copper and arsenic. Annual stack testing is required thereafter, provided that the semi-annual testing demonstrates compliance with the facility emission limits. There are no emission limits for chromium, copper or arsenic.

The wood fuel concentration limits and stack testing were required due to Florida's Air Toxics Policy, which established Florida Air Reference Concentrations (FARCs). However, the FARCs are no longer in effect. It is therefore requested that the fuel concentration limits and the requirement to test stack emissions for chromium, copper and arsenic be deleted. OkPLP will continue to implement their fuel testing, management and inspection program in order to insure that undesirable materials are not burned in the boilers.

### 3.0 AIR QUALITY REVIEW REQUIREMENTS AND SOURCE APPLICABILITY

OkPLP is proposing changes to the emission limits for five pollutants and desires to amend the current PSD construction permit. The averaging time specified for the CO emissions limit for all fuels is also being revised. The requested emissions from the boilers are not greater than the currently permitted emissions, except in regards to annual emissions of lead and SAM.

A PSD source applicability analysis for OkPLP, incorporating these changes, is provided in Table 3-1. Current baseline emissions for CO and SO<sub>2</sub> were presented in OkPLP's application to burn natural gas (November 14, 2000, submittal letter by Golder Associates). An excerpt from this letter is provided in the appendix for ease of reference. Current baseline emissions for lead, beryllium and SAM are presented in the appendix.

As shown in Table 3-1, based on the permit limits and the current OkPLP annual emissions, PSD review is triggered for CO, SO<sub>2</sub>, fluorides and SAM. The PSD review requirements are addressed in the following discussion.

OkPLP is not proposing to increase maximum permitted short-term or annual emissions of SO<sub>2</sub>. OkPLP has previously performed air quality modeling analysis for SO<sub>2</sub> and CO emissions. The previous modeling demonstrated compliance with ambient standards and increments. These analyses would not change based on the proposed changes OkPLP is requesting.

OkPLP is currently employing best available control technology (BACT) to control pollutant emissions. SO<sub>2</sub> emissions from biomass or No. 2 fuel oil are very low, which renders any add-on control equipment, such as flue gas desulfurization, too costly. Potential coal burning at OkPLP, although not likely to occur, is now limited to less than 10 percent on an annual heat input basis. This low level of potential coal burning also does not warrant any add-on control equipment, particularly considering that low sulfur coal would be burned.

Emissions of SAM and fluorides are related to SO<sub>2</sub> emissions and the amount of coal burned. Therefore, BACT for SO<sub>2</sub> also represents BACT for these pollutants (i.e., no add-on control equipment and burning of limited amounts of low sulfur coal).

Table 2-1. Revised Maximum Short-Term Emissions for OKPLP Cogeneration Facility (per boiler)

| Regulated<br>Pollutant | Biomass                          |                                  |                                 | No. 2 Fuel Oil                   |                                  |                                 | Coal                             |                                  |                                 | Natural Gas                      |                                  |                                 | Maximum<br>Emissions<br>for any fuel<br>(lb/hr) |
|------------------------|----------------------------------|----------------------------------|---------------------------------|----------------------------------|----------------------------------|---------------------------------|----------------------------------|----------------------------------|---------------------------------|----------------------------------|----------------------------------|---------------------------------|---|
|                        | Emission<br>Factor<br>(lb/MMBtu) | Activity<br>Factor<br>(MMBtu/hr) | Maximum<br>Emissions<br>(lb/hr) | Emission<br>Factor<br>(lb/MMBtu) | Activity<br>Factor<br>(MMBtu/hr) | Maximum<br>Emissions<br>(lb/hr) | Emission<br>Factor<br>(lb/MMBtu) | Activity<br>Factor<br>(MMBtu/hr) | Maximum<br>Emissions<br>(lb/hr) | Emission<br>Factor<br>(lb/MMBtu) | Activity<br>Factor<br>(MMBtu/hr) | Maximum<br>Emissions<br>(lb/hr) |   |
| Sulfur dioxide *       | 0.20                             | 715                              | 143.0                           | 0.05                             | 490                              | 24.5                            | 1.2                              | 490                              | 588.0                           | 0.00058                          | 605                              | 0.4                             | 588.0   |
| Carbon monoxide *      | 1.0                              | 715                              | 715.0                           | 1.0                              | 490                              | 490.0                           | 1.0                              | 490                              | 490.0                           | 0.08                             | 605                              | 48.4                            | 715.0   |
| Sulfuric acid mist     | 0.012                            | 715                              | 8.58                            | 0.0015                           | 490                              | 0.74                            | 0.036                            | 490                              | 17.64                           | 3.55E-05                         | 605                              | 0.02                            | 17.64   |

\* 24-hour daily average.

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

| Fuel   | Heat Input       | Heat Transfer Efficiency (%) | Heat Output      | Fuel Firing Rate           |
|--|------------------|------------------------------|------------------|----------------------------|
| <b>Maximum Short-Term (per boiler)</b>         |                  |                              |                  |                            |
|  | (MMBtu/hr)       |                              | (MMBtu/hr)       |                            |
| Biomass - Bagasse                              | 715              | 68                           | 486              | 195,730 lb/hr <sup>a</sup> |
| - Wood   | 715              | 68                           | 486              | 158,748 lb/hr <sup>b</sup> |
| No. 2 Fuel Oil                                 | 490              | 85                           | 417              | 3,551 gal/hr               |
| Natural Gas                                    | 605              | 85                           | 514              | 605,000 scf/hr             |
| Coal   | 490              | 85                           | 417              | 40,833 lb/hr               |
| <b>Annual Average (per boiler)</b>             |                  |                              |                  |                            |
|  | (Btu/yr)         |                              | (Btu/yr)         |                            |
| <b><u>NORMAL OPERATIONS (100% BIOMASS)</u></b> |                  |                              |                  |                            |
| Biomass  | 6.263E+12        | 68                           | 4.259E+12        | 857,295 TPY <sup>a</sup>   |
| No. 2 Fuel Oil                                 | 0                | 85                           | 0                | 0 gal/yr                   |
| Natural Gas                                    | 0                | 85                           | 0                | 0 MMscf/yr                 |
| Coal   | 0                | 85                           | 0                | 0 TPY                      |
| <b>TOTAL</b>                                   | <b>6.263E+12</b> |                              | <b>4.259E+12</b> |                            |
| <b><u>24.9% OIL FIRING</u></b>                 |                  |                              |                  |                            |
| Biomass  | 4.428E+12        | 68                           | 3.011E+12        | 606,077 TPY <sup>a</sup>   |
| No. 2 Fuel Oil                                 | 1.468E+12        | 85                           | 1.248E+12        | 10,638,685 gal/yr          |
| Natural Gas                                    | 0                | 85                           | 0                | 0 MMscf/yr                 |
| Coal   | 0                | 85                           | 0                | 0 TPY                      |
| <b>TOTAL</b>                                   | <b>5.896E+12</b> |                              | <b>4.259E+12</b> |                            |
| <b><u>24.9% NATURAL GAS FIRING</u></b>         |                  |                              |                  |                            |
| Biomass  | 4.428E+12        | 68                           | 3.011E+12        | 606,077 TPY <sup>a</sup>   |
| No. 2 Fuel Oil                                 | 0                | 85                           | 0                | 0 gal/yr                   |
| Natural Gas                                    | 1.468E+12        | 85                           | 1.248E+12        | 1,468 MMscf/yr             |
| Coal   | 0                | 85                           | 0                | 0 TPY                      |
| <b>TOTAL</b>                                   | <b>5.896E+12</b> |                              | <b>4.259E+12</b> |                            |
| <b><u>18.0% COAL FIRING</u></b>                |                  |                              |                  |                            |
| Biomass  | 4.915E+12        | 68                           | 3.342E+12        | 672,735 TPY <sup>a</sup>   |
| No. 2 Fuel Oil                                 | 0                | 85                           | 0                | 0 gal/yr                   |
| Natural Gas                                    | 0                | 85                           | 0                | 0 MMscf/yr                 |
| Coal   | 1.078E+12        | 85                           | 9.164E+11        | 44,920 TPY                 |
| <b>TOTAL</b>                                   | <b>5.993E+12</b> |                              | <b>4.259E+12</b> |                            |

<sup>a</sup> Based on bagasse firing.

<sup>b</sup> Based on wood firing.

Notes:

40 CFR 60, Subpart Da, limits fossil-fuel firing to less than 25% for each boiler (heat input basis).

Total heat output required = 4.259E+12 Btu/yr per boiler.

Fuels may be burned in combination, not to exceed total heat outputs.

Based on fuel heating values as follows:

Bagasse - 3,653 Btu/lb

Wood - 4,504 Btu/lb

No. 2 Fuel Oil - 138,000 Btu/gal

Coal - 12,000 Btu/lb

Natural gas - 1,000 Btu/scf

Table 2-3. Maximum Fuel Usage and Heat Input Rates, Total All Three Boilers, OkPLP

| Fuel  | Heat Input              | Heat Transfer Efficiency (%) | Heat Output             | Fuel Firing Rate           |
|---|-------------------------|------------------------------|-------------------------|----------------------------|
| <u>Maximum Annual Average (total all three boilers)</u> |                         |                              |                         |                            |
| <b><u>NORMAL OPERATIONS</u></b>                         |                         |                              |                         |                            |
| Biomass   | 1.150E+13 Btu/yr        | 68                           | 7.820E+12 Btu/yr        | 1,436,945 TPY <sup>a</sup> |
| No. 2 Oil   | 0 Btu/yr                | 85                           | 0 Btu/yr                | 0 gal/yr                   |
| Natural Gas   | 0 Btu/yr                | 85                           | 0 Btu/yr                | 0 MMscf/yr                 |
| Coal  | 0 Btu/yr                | 85                           | 0 Btu/yr                | 0 TPY                      |
| <b>TOTAL</b>  | <b>1.150E+13 Btu/yr</b> |                              | <b>7.820E+12 Btu/yr</b> |                            |
| <b><u>24.9% OIL FIRING</u></b>                          |                         |                              |                         |                            |
| Biomass   | 8.130E+12 Btu/yr        | 68                           | 5.528E+12 Btu/yr        | 1,015,857 TPY <sup>a</sup> |
| No. 2 Oil   | 2.696E+12 Btu/yr        | 85                           | 2.291E+12 Btu/yr        | 19,533,086 gal/yr          |
| Natural Gas   | 0 Btu/yr                | 85                           | 0 Btu/yr                | 0 MMscf/yr                 |
| Coal  | 0 Btu/yr                | 85                           | 0 Btu/yr                | 0 TPY                      |
| <b>TOTAL</b>  | <b>1.083E+13 Btu/yr</b> |                              | <b>7.820E+12 Btu/yr</b> |                            |
| <b><u>24.9% NATURAL GAS FIRING</u></b>                  |                         |                              |                         |                            |
| Biomass   | 8.130E+12 Btu/yr        | 68                           | 5.528E+12 Btu/yr        | 1,015,857 TPY <sup>a</sup> |
| No. 2 Oil   | 0 Btu/yr                | 85                           | 0 Btu/yr                | 0 gal/yr                   |
| Natural Gas   | 2.696E+12 Btu/yr        | 85                           | 2.291E+12 Btu/yr        | 2,696 MMscf/yr             |
| Coal  | 0 Btu/yr                | 85                           | 0 Btu/yr                | 0 TPY                      |
| <b>TOTAL</b>  | <b>1.083E+13 Btu/yr</b> |                              | <b>7.820E+12 Btu/yr</b> |                            |
| <b><u>9.6% COAL FIRING</u></b>                          |                         |                              |                         |                            |
| Biomass   | 1.0152E+13 Btu/yr       | 68                           | 6.903E+12 Btu/yr        | 1,268,510 TPY <sup>a</sup> |
| No. 2 Oil   | 0 Btu/yr                | 85                           | 0 Btu/yr                | 0 gal/yr                   |
| Natural Gas   | 0 Btu/yr                | 85                           | 0 Btu/yr                | 0 MMscf/yr                 |
| Coal  | 1.078E+12 Btu/yr        | 85                           | 9.164E+11 Btu/yr        | 44,920 TPY                 |
| <b>TOTAL</b>  | <b>1.123E+13 Btu/yr</b> |                              | <b>7.820E+12 Btu/yr</b> |                            |

<sup>a</sup> Assumes 53.9% of annual heat input from bagasse, and 46.1% from wood.

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.

Table 2-4. Maximum Annual Emissions for Single Boiler at Okeelanta Power Cogeneration Facility

| Regulated<br>Pollutant                   | Biomass                          |                                    |                              | Alternate Fuel                   |                                    |                              | Total<br>Annual<br>Emissions<br>(TPY) |
|--|----------------------------------|------------------------------------|------------------------------|----------------------------------|------------------------------------|------------------------------|---------------------------------------|
|  | Emission<br>Factor<br>(lb/MMBtu) | Activity<br>Factor<br>(E12 Btu/yr) | Annual<br>Emissions<br>(TPY) | Emission<br>Factor<br>(lb/MMBtu) | Activity<br>Factor<br>(E12 Btu/yr) | Annual<br>Emissions<br>(TPY) |                                       |
| <u>100% Biomass</u>                      |                                  |                                    |                              |                                  |                                    |                              |                                       |
| Particulate (TSP)                        | 0.03                             | 6.263                              | 93.95                        | —                                | —                                  | —                            | 93.95 <sup>a</sup>                    |
| Particulate (PM <sub>10</sub> )          | 0.03                             | 6.263                              | 93.95                        | —                                | —                                  | —                            | 93.95 <sup>a</sup>                    |
| Sulfur dioxide                           | 0.10                             | 6.263                              | 313.15                       | —                                | —                                  | —                            | 313.15                                |
| Nitrogen oxides                          | 0.15                             | 6.263                              | 469.73                       | —                                | —                                  | —                            | 469.73 <sup>a</sup>                   |
| Carbon monoxide                          | 0.35                             | 6.263                              | 1,096.03                     | —                                | —                                  | —                            | 1,096.03 <sup>a</sup>                 |
| VOC                                      | 0.06                             | 6.263                              | 187.89                       | —                                | —                                  | —                            | 187.89 <sup>a</sup>                   |
| Lead - Bagasse                           | 2.5E-05                          | 3.132 <sup>b</sup>                 | 0.039                        | —                                | —                                  | —                            | 0.290 <sup>a</sup>                    |
| - Wood                                   | 1.6E-04                          | 3.132 <sup>c</sup>                 | 0.251                        | —                                | —                                  | —                            |                                       |
| Mercury - Bagasse                        | 5.43E-06                         | 3.132 <sup>b</sup>                 | 0.0085                       | —                                | —                                  | —                            | 0.0148                                |
| - Wood                                   | 4.00E-06                         | 3.132 <sup>c</sup>                 | 0.00626                      | —                                | —                                  | —                            |                                       |
| Beryllium                                | —                                | —                                  | —                            | —                                | —                                  | —                            | —                                     |
| Fluorides                                | —                                | —                                  | —                            | —                                | —                                  | —                            | —                                     |
| Sulfuric acid mist                       | 0.0061                           | 6.263                              | 19.10                        | —                                | —                                  | —                            | 19.10                                 |
| <u>75.1% Biomass / 24.9% Fuel Oil</u>    |                                  |                                    |                              |                                  |                                    |                              |                                       |
| Particulate (TSP)                        | 0.03                             | 4.428                              | 66.42                        | 0.03                             | 1.468                              | 22.02                        | 88.44                                 |
| Particulate (PM <sub>10</sub> )          | 0.03                             | 4.428                              | 66.42                        | 0.03                             | 1.468                              | 22.02                        | 88.44                                 |
| Sulfur dioxide                           | 0.02                             | 4.428                              | 44.28                        | 0.05                             | 1.468                              | 36.70                        | 80.98                                 |
| Nitrogen oxides                          | 0.15                             | 4.428                              | 332.10                       | 0.15                             | 1.468                              | 110.10                       | 442.20                                |
| Carbon monoxide                          | 0.35                             | 4.428                              | 774.90                       | 0.35                             | 1.468                              | 256.90                       | 1,031.80                              |
| VOC                                      | 0.06                             | 4.428                              | 132.84                       | 0.03                             | 1.468                              | 22.02                        | 154.86                                |
| Lead - Bagasse                           | 2.5E-05                          | 2.214 <sup>b</sup>                 | 0.028                        | 8.9E-07                          | 1.468                              | 0.0007                       | 0.205                                 |
| - Wood                                   | 1.6E-04                          | 2.214 <sup>c</sup>                 | 0.177                        | —                                | —                                  | —                            |                                       |
| Mercury - Bagasse                        | 5.43E-06                         | 2.214 <sup>b</sup>                 | 0.0060                       | 2.4E-06                          | 1.468                              | 0.0018                       | 0.0122                                |
| - Wood                                   | 4.00E-06                         | 2.214 <sup>c</sup>                 | 0.00443                      | —                                | —                                  | —                            |                                       |
| Beryllium                                | —                                | —                                  | —                            | 3.5E-07                          | 1.468                              | 0.00026                      | 0.00026                               |
| Fluorides                                | —                                | —                                  | —                            | 6.27E-06                         | 1.468                              | 0.0046                       | 0.0046                                |
| Sulfuric acid mist                       | 0.0061                           | 4.428                              | 13.51                        | 0.0015                           | 1.468                              | 1.10                         | 14.61                                 |
| <u>75.1% Biomass / 24.9% Natural Gas</u> |                                  |                                    |                              |                                  |                                    |                              |                                       |
| Particulate (TSP)                        | 0.03                             | 4.428                              | 66.42                        | 0.0073                           | 1.468                              | 5.36                         | 71.78                                 |
| Particulate (PM <sub>10</sub> )          | 0.03                             | 4.428                              | 66.42                        | 0.0073                           | 1.468                              | 5.36                         | 71.78                                 |
| Sulfur dioxide                           | 0.02                             | 4.428                              | 44.28                        | 0.00058                          | 1.468                              | 0.43                         | 44.71                                 |
| Nitrogen oxides                          | 0.15                             | 4.428                              | 332.10                       | 0.15                             | 1.468                              | 110.10                       | 442.20                                |
| Carbon monoxide                          | 0.35                             | 4.428                              | 774.90                       | 0.08                             | 1.468                              | 58.72                        | 833.62                                |
| VOC                                      | 0.06                             | 4.428                              | 132.84                       | 0.0053                           | 1.468                              | 3.89                         | 136.73                                |
| Lead - Bagasse                           | 2.5E-05                          | 2.214 <sup>b</sup>                 | 0.028                        | 4.8E-07                          | 1.468                              | 0.0004                       | 0.205                                 |
| - Wood                                   | 1.6E-04                          | 2.214 <sup>c</sup>                 | 0.177                        | —                                | —                                  | —                            |                                       |
| Mercury - Bagasse                        | 5.43E-06                         | 2.214 <sup>b</sup>                 | 0.0060                       | 2.5E-07                          | 1.468                              | 0.0002                       | 0.0106                                |
| - Wood                                   | 4.00E-06                         | 2.214 <sup>c</sup>                 | 0.00443                      | —                                | —                                  | —                            |                                       |
| Beryllium                                | —                                | —                                  | —                            | 1.2E-08                          | 1.468                              | 0.00001                      | 0.00001                               |
| Fluorides                                | —                                | —                                  | —                            | —                                | —                                  | —                            | —                                     |
| Sulfuric acid mist                       | 0.0061                           | 4.428                              | 13.51                        | 3.55E-05                         | 1.468                              | 0.03                         | 13.53                                 |
| <u>82.0% Biomass / 18.0% Coal</u>        |                                  |                                    |                              |                                  |                                    |                              |                                       |
| Particulate (TSP)                        | 0.03                             | 4.915                              | 73.73                        | 0.03                             | 1.078                              | 16.17                        | 89.90                                 |
| Particulate (PM <sub>10</sub> )          | 0.03                             | 4.915                              | 73.73                        | 0.03                             | 1.078                              | 16.17                        | 89.90                                 |
| Sulfur dioxide                           | 0.02                             | 4.915                              | 49.15                        | 1.2                              | 1.078                              | 646.80                       | 695.95 <sup>a</sup>                   |
| Nitrogen oxides                          | 0.15                             | 4.915                              | 368.63                       | 0.17                             | 1.078                              | 91.63                        | 460.26                                |
| Carbon monoxide                          | 0.35                             | 4.915                              | 860.13                       | 0.35                             | 1.078                              | 188.65                       | 1,048.8                               |
| VOC                                      | 0.06                             | 4.915                              | 147.45                       | 0.03                             | 1.078                              | 16.17                        | 163.62                                |
| Lead - Bagasse                           | 2.5E-05                          | 2.458 <sup>b</sup>                 | 0.031                        | 6.4E-05                          | 1.078                              | 0.0345                       | 0.2618                                |
| - Wood                                   | 1.6E-04                          | 2.458 <sup>c</sup>                 | 0.197                        | —                                | —                                  | —                            |                                       |
| Mercury - Bagasse                        | 5.43E-06                         | 2.458 <sup>b</sup>                 | 0.0067                       | 8.4E-06                          | 1.078                              | 0.0045                       | 0.0161 <sup>a</sup>                   |
| - Wood                                   | 4.00E-06                         | 2.458 <sup>c</sup>                 | 0.00492                      | —                                | —                                  | —                            |                                       |
| Beryllium                                | —                                | —                                  | —                            | 5.9E-06                          | 1.078                              | 0.0032                       | 0.0032 <sup>a</sup>                   |
| Fluorides                                | —                                | —                                  | —                            | 0.024                            | 1.078                              | 12.94                        | 12.94 <sup>a</sup>                    |
| Sulfuric acid mist                       | 0.0061                           | 4.915                              | 14.99                        | 0.036                            | 1.078                              | 19.40                        | 34.39 <sup>a</sup>                    |

<sup>a</sup> Denotes maximum annual emissions for any fuel scenario.<sup>b</sup> Represents 50% of total heat input due to bagasse.<sup>c</sup> Represents 50% of total heat input due to wood.

Note: No emissions of total reduced sulfur, asbestos, or vinyl chloride are expected.

Fuel type percentages are based on heat input.



Table 2-5. Maximum Annual Emissions for Okeelanta Power Cogeneration Facility (total all boilers)

| Regulated Pollutant                      | Biomass                    |                              |                        | Alternate Fuel             |                              |                        | Total Annual Emissions (TPY) |
|--|----------------------------|------------------------------|------------------------|----------------------------|------------------------------|------------------------|------------------------------|
|  | Emission Factor (lb/MMBtu) | Activity Factor (E12 Btu/yr) | Annual Emissions (TPY) | Emission Factor (lb/MMBtu) | Activity Factor (E12 Btu/yr) | Annual Emissions (TPY) |                              |
| <u>100% Biomass</u>                      |                            |                              |                        |                            |                              |                        |                              |
| Particulate (TSP)                        | 0.03                       | 11.500                       | 172.50                 | -                          | -                            | -                      | 172.50 *                     |
| Particulate (PM <sub>10</sub> )          | 0.03                       | 11.500                       | 172.50                 | -                          | -                            | -                      | 172.50 *                     |
| Sulfur dioxide                           | 0.10                       | 11.500                       | 575.00                 | -                          | -                            | -                      | 575.00                       |
| Nitrogen oxides                          | 0.15                       | 11.500                       | 862.50                 | -                          | -                            | -                      | 862.50 *                     |
| Carbon monoxide                          | 0.35                       | 11.500                       | 2,012.50               | -                          | -                            | -                      | 2,012.50 *                   |
| VOC                                      | 0.06                       | 11.500                       | 345.00                 | -                          | -                            | -                      | 345.00 *                     |
| Lead - Bagasse                           | 2.5E-05                    | 5.750 <sup>b</sup>           | 0.072                  | -                          | -                            | -                      | 0.532 *                      |
| - Wood                                   | 1.6E-04                    | 5.750 <sup>c</sup>           | 0.460                  | -                          | -                            | -                      |                              |
| Mercury - Bagasse                        | 5.43E-06                   | 5.750 <sup>b</sup>           | 0.0156                 | -                          | -                            | -                      | 0.0271                       |
| - Wood                                   | 4.00E-06                   | 5.750 <sup>c</sup>           | 0.01150                | -                          | -                            | -                      |                              |
| Beryllium                                | -                          | -                            | -                      | -                          | -                            | -                      | -                            |
| Fluorides                                | -                          | -                            | -                      | -                          | -                            | -                      | -                            |
| Sulfuric acid mist                       | 0.0061                     | 11.500                       | 35.08                  | -                          | -                            | -                      | 35.08                        |
| <u>75.1% Biomass / 24.9% Fuel Oil</u>    |                            |                              |                        |                            |                              |                        |                              |
| Particulate (TSP)                        | 0.03                       | 8.130                        | 121.95                 | 0.03                       | 2.696                        | 40.44                  | 162.39                       |
| Particulate (PM <sub>10</sub> )          | 0.03                       | 8.130                        | 121.95                 | 0.03                       | 2.696                        | 40.44                  | 162.39                       |
| Sulfur dioxide                           | 0.10                       | 8.130                        | 406.50                 | 0.05                       | 2.696                        | 67.40                  | 473.90                       |
| Nitrogen oxides                          | 0.15                       | 8.130                        | 609.75                 | 0.15                       | 2.696                        | 202.20                 | 811.95                       |
| Carbon monoxide                          | 0.35                       | 8.130                        | 1,422.75               | 0.35                       | 2.696                        | 471.80                 | 1,894.55                     |
| VOC                                      | 0.06                       | 8.130                        | 243.90                 | 0.03                       | 2.696                        | 40.44                  | 284.34                       |
| Lead - Bagasse                           | 2.5E-05                    | 4.065 <sup>b</sup>           | 0.051                  | 8.9E-07                    | 2.696                        | 0.0012                 | 0.377                        |
| - Wood                                   | 1.6E-04                    | 4.065 <sup>c</sup>           | 0.325                  | -                          | -                            | -                      |                              |
| Mercury - Bagasse                        | 5.43E-06                   | 4.065 <sup>b</sup>           | 0.0110                 | 2.4E-06                    | 2.696                        | 0.0032                 | 0.0224                       |
| - Wood                                   | 4.00E-06                   | 4.065 <sup>c</sup>           | 0.00813                | -                          | -                            | -                      |                              |
| Beryllium                                | -                          | -                            | -                      | 3.5E-07                    | 2.696                        | 0.00047                | 0.00047                      |
| Fluorides                                | -                          | -                            | -                      | 6.27E-06                   | 2.696                        | 0.0085                 | 0.0085                       |
| Sulfuric acid mist                       | 0.0061                     | 8.130                        | 24.80                  | 0.0015                     | 2.696                        | 2.02                   | 26.82                        |
| <u>75.1% Biomass / 24.9% Natural Gas</u> |                            |                              |                        |                            |                              |                        |                              |
| Particulate (TSP)                        | 0.03                       | 8.130                        | 121.95                 | 0.0073                     | 2.696                        | 9.84                   | 131.79                       |
| Particulate (PM <sub>10</sub> )          | 0.03                       | 8.130                        | 121.95                 | 0.0073                     | 2.696                        | 9.84                   | 131.79                       |
| Sulfur dioxide                           | 0.10                       | 8.130                        | 406.50                 | 0.00058                    | 2.696                        | 0.78                   | 407.28                       |
| Nitrogen oxides                          | 0.15                       | 8.130                        | 609.75                 | 0.15                       | 2.696                        | 202.20                 | 811.95                       |
| Carbon monoxide                          | 0.35                       | 8.130                        | 1,422.75               | 0.08                       | 2.696                        | 107.84                 | 1,530.59                     |
| VOC                                      | 0.06                       | 8.130                        | 243.90                 | 0.0053                     | 2.696                        | 7.14                   | 251.04                       |
| Lead - Bagasse                           | 2.5E-05                    | 4.065 <sup>b</sup>           | 0.051                  | 4.8E-07                    | 2.696                        | 0.0006                 | 0.377                        |
| - Wood                                   | 1.6E-04                    | 4.065 <sup>c</sup>           | 0.325                  | -                          | -                            | -                      |                              |
| Mercury - Bagasse                        | 5.43E-06                   | 4.065 <sup>b</sup>           | 0.0110                 | 2.5E-07                    | 2.696                        | 0.0003                 | 0.0195                       |
| - Wood                                   | 4.00E-06                   | 4.065 <sup>c</sup>           | 0.00813                | -                          | -                            | -                      |                              |
| Beryllium                                | -                          | -                            | -                      | 1.2E-08                    | 2.696                        | 0.00002                | 0.00002                      |
| Fluorides                                | -                          | -                            | -                      | -                          | -                            | -                      | -                            |
| Sulfuric acid mist                       | 0.0061                     | 8.130                        | 24.80                  | 3.55E-05                   | 2.696                        | 0.05                   | 24.84                        |
| <u>90.4% Biomass / 9.60% Coal</u>        |                            |                              |                        |                            |                              |                        |                              |
| Particulate (TSP)                        | 0.03                       | 10.152                       | 152.28                 | 0.03                       | 1.078                        | 16.17                  | 168.45                       |
| Particulate (PM <sub>10</sub> )          | 0.03                       | 10.152                       | 152.28                 | 0.03                       | 1.078                        | 16.17                  | 168.45                       |
| Sulfur dioxide                           | 0.10                       | 10.152                       | 507.60                 | 1.2                        | 1.078                        | 646.80                 | 1,154.40 *                   |
| Nitrogen oxides                          | 0.15                       | 10.152                       | 761.40                 | 0.17                       | 1.078                        | 91.63                  | 853.03                       |
| Carbon monoxide                          | 0.35                       | 10.152                       | 1,776.60               | 0.35                       | 1.078                        | 188.65                 | 1,965.25                     |
| VOC                                      | 0.06                       | 10.152                       | 304.56                 | 0.03                       | 1.078                        | 16.17                  | 320.73                       |
| Lead - Bagasse                           | 2.5E-05                    | 5.076 <sup>b</sup>           | 0.063                  | 6.4E-05                    | 1.078                        | 0.0345                 | 0.504                        |
| - Wood                                   | 1.6E-04                    | 5.076 <sup>c</sup>           | 0.406                  | -                          | -                            | -                      |                              |
| Mercury - Bagasse                        | 5.43E-06                   | 5.076 <sup>b</sup>           | 0.0138                 | 8.4E-06                    | 1.078                        | 0.0045                 | 0.0285 *                     |
| - Wood                                   | 4.00E-06                   | 5.076 <sup>c</sup>           | 0.01015                | -                          | -                            | -                      |                              |
| Beryllium                                | -                          | -                            | -                      | 5.9E-06                    | 1.078                        | 0.0032                 | 0.0032 *                     |
| Fluorides                                | -                          | -                            | -                      | 0.024                      | 1.078                        | 12.94                  | 12.94 *                      |
| Sulfuric acid mist                       | 0.0061                     | 10.152                       | 30.96                  | 0.036                      | 1.078                        | 19.40                  | 50.37 *                      |

\* Denotes maximum annual emissions for any fuel scenario.

<sup>b</sup> Represents 50% of total heat input due to bagasse.

<sup>c</sup> Represents 50% of total heat input due to wood.

Note: No emissions of total reduced sulfur, asbestos, or vinyl chloride are expected.

Table 3-1. Current Actual and Future Potential Emissions, Okeelanta Power L.P.

| Boiler                        | Operating Hours <sup>a</sup> | Heat Input <sup>a</sup><br>(MMBtu/yr) | Annual Emissions (TPY) |                 |       |       |       |
|-------------------------------|------------------------------|---------------------------------------|------------------------|-----------------|-------|-------|-------|
|                               |                              |                                       | CO                     | SO <sub>2</sub> | Lead  | Fl    | SAM   |
| Boiler A                      | 7,265                        | 3,824,398                             | 478.34                 | 47.11           | 0.047 | 0.154 | 5.7   |
| Boiler B                      | 5,927                        | 3,206,304                             | 485.29                 | 38.32           | 0.076 | 0.073 | 4.8   |
| Boiler C                      | 6,978                        | 3,694,714                             | 562.44                 | 47.80           | 0.334 | 0.124 | 5.5   |
| Total                         | 20,170                       | 10,725,416                            | 1,526.07               | 133.23          | 0.456 | 0.352 | 16.0  |
| Requested Permit Limit        |                              | 11,500,000                            | 2,012.5                | 1,154.4         | 0.532 | 12.94 | 50.37 |
| Net Increase                  |                              |                                       | 486.4                  | 1,021.2         | 0.076 | 12.59 | 34.34 |
| PSD Significant Emission Rate |                              |                                       | 100                    | 40              | 0.6   | 3     | 7     |

<sup>a</sup> Based on the period April 1999 through March 2000.

Table 3-2. Current Actual PM, PM<sub>10</sub>, and VOC Emissions for OkPLP Boilers

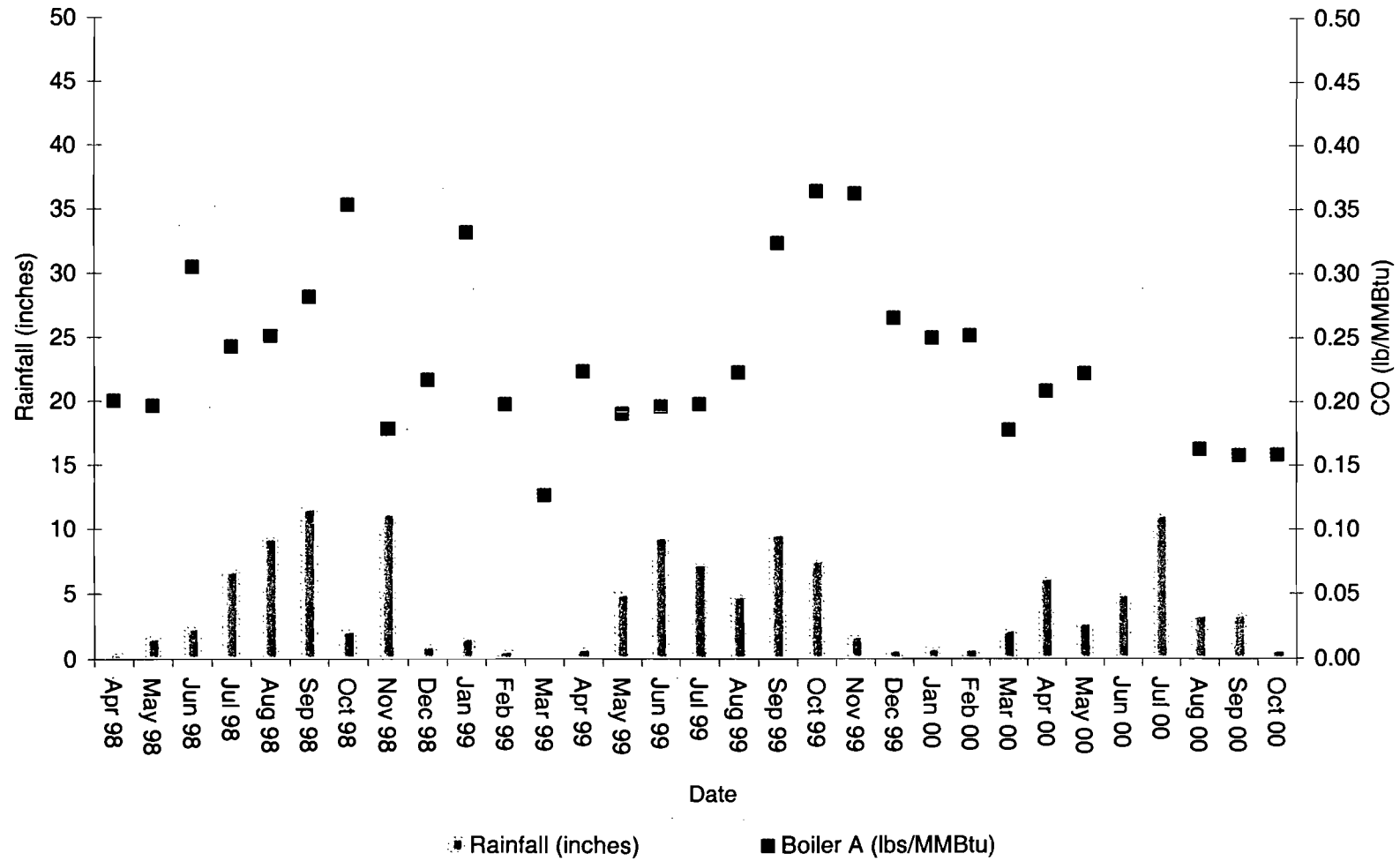
| Parameter                                 | Sulfuric Acid |           |           | Sulfuric Acid |           |           | Sulfuric Acid |           |        |           |           |           |
|---|---------------|-----------|-----------|---------------|-----------|-----------|---------------|-----------|--------|-----------|-----------|-----------|
|   | Lead          | Fluorides | Mist      | Lead          | Fluorides | Mist      | Lead          | Fluorides | Mist   |           |           |           |
|   | Boiler A      |           |           | Boiler B      |           |           | Boiler C      |           |        |           |           |           |
| <u>Emission Factor (lb/MMBtu)</u>         |               |           |           |               |           |           |               |           |        |           |           |           |
| Wood waste <sup>a</sup>                   | 2.96E-05      | 9.38E-05  | 0.003     | 8.39E-05      | 5.07E-05  | 0.003     | 3.97E-04      | 1.13E-04  | 0.003  |           |           |           |
| Bagasse <sup>a</sup>                      | 2.03E-05      | 7.06E-05  | 0.003     | 7.30E-06      | 4.07E-05  | 0.003     | 6.29E-06      | 3.04E-05  | 0.003  |           |           |           |
| No. 2 Fuel <sup>b</sup>                   | 8.90E-07      | 6.30E-06  | 0.0015    | 8.90E-07      | 6.30E-06  | 0.0015    | 8.90E-07      | 6.30E-06  | 0.0015 |           |           |           |
| <u>Heat Input (MMBtu/yr) <sup>c</sup></u> |               |           |           |               |           |           |               |           |        |           |           |           |
| Wood                                      | 45.68%        | 1,746,985 | 1,746,985 | 1,746,985     | 52.05%    | 1,668,881 | 1,668,881     | 1,668,881 | 44.68% | 1,650,798 | 1,650,798 | 1,650,798 |
| Bagasse                                   | 53.69%        | 2,053,319 | 2,053,319 | 2,053,319     | 47.34%    | 1,517,864 | 1,517,864     | 1,517,864 | 54.48% | 2,012,880 | 2,012,880 | 2,012,880 |
| No. 2                                     | 0.63%         | 24,094    | 24,094    | 24,094        | 0.61%     | 19,558    | 19,558        | 19,558    | 0.84%  | 31,036    | 31,036    | 31,036    |
| Total                                     |               | 3,824,398 | 3,824,398 | 3,824,398     |           | 3,206,304 | 3,206,304     | 3,206,304 |        | 3,694,714 | 3,694,714 | 3,694,714 |
| <u>Emissions (TPY)</u>                    |               |           |           |               |           |           |               |           |        |           |           |           |
| April 1999 - March 2000 Emissions         | 0.047         | 0.154     | 5.7       | 0.076         | 0.073     | 4.8       | 0.33          | 0.124     | 5.5    |           |           |           |

<sup>a</sup> Based on actual stack test data for the fuel type.

<sup>b</sup> Based upon permit limit.

<sup>c</sup> Based upon actual boiler heat input for period April 1999 - March 2000.

**Figure 2-1. OkPLP Boiler A  
Rainfall vs. Carbon Monoxide (Monthly Average)**



**Figure 2-2. OkPLP Boiler B  
Rainfall vs. Carbon Monoxide (Monthly Average)**

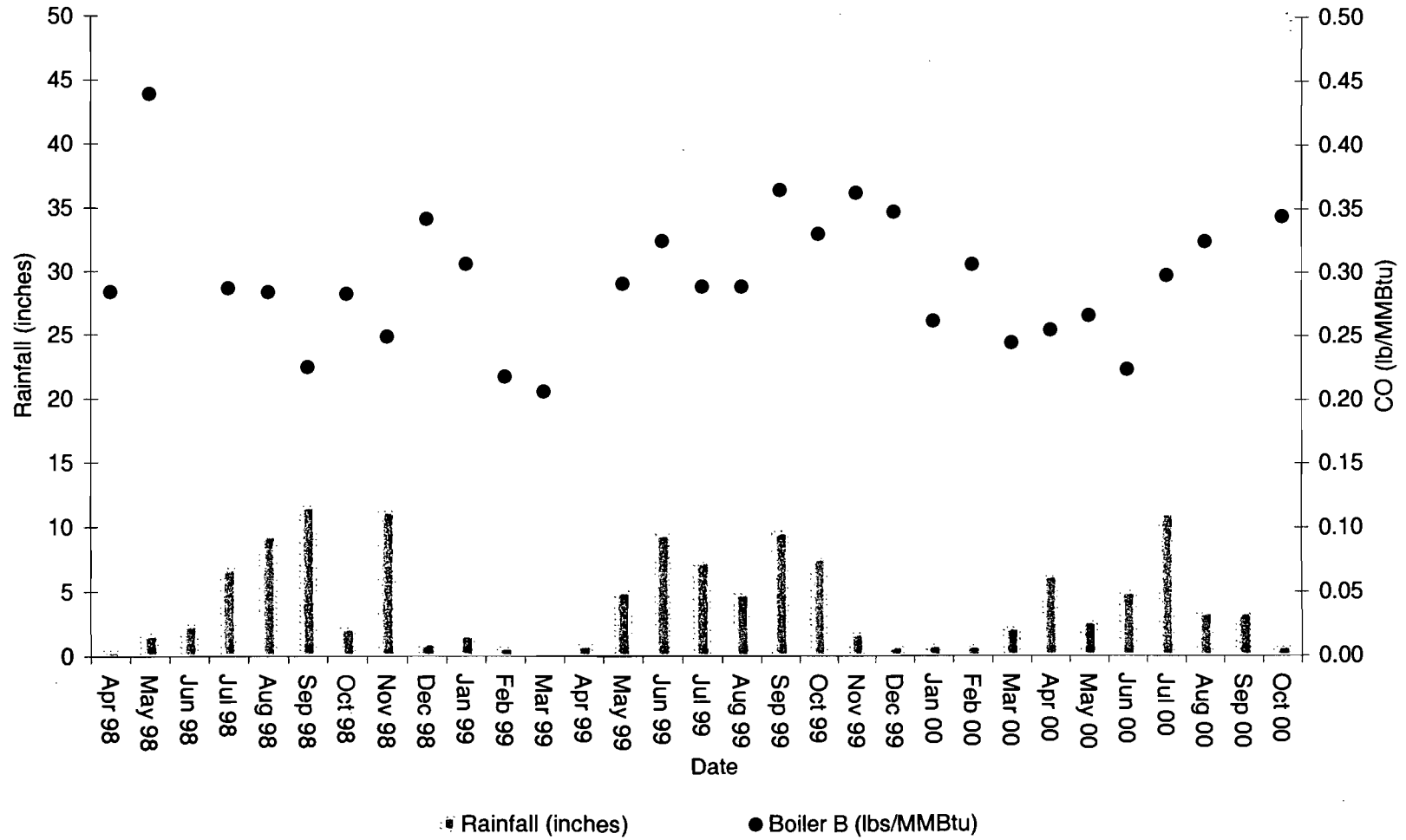


Figure 2-3. OkPLP Boiler C  
Rainfall vs. Carbon Monoxide (Monthly Average)

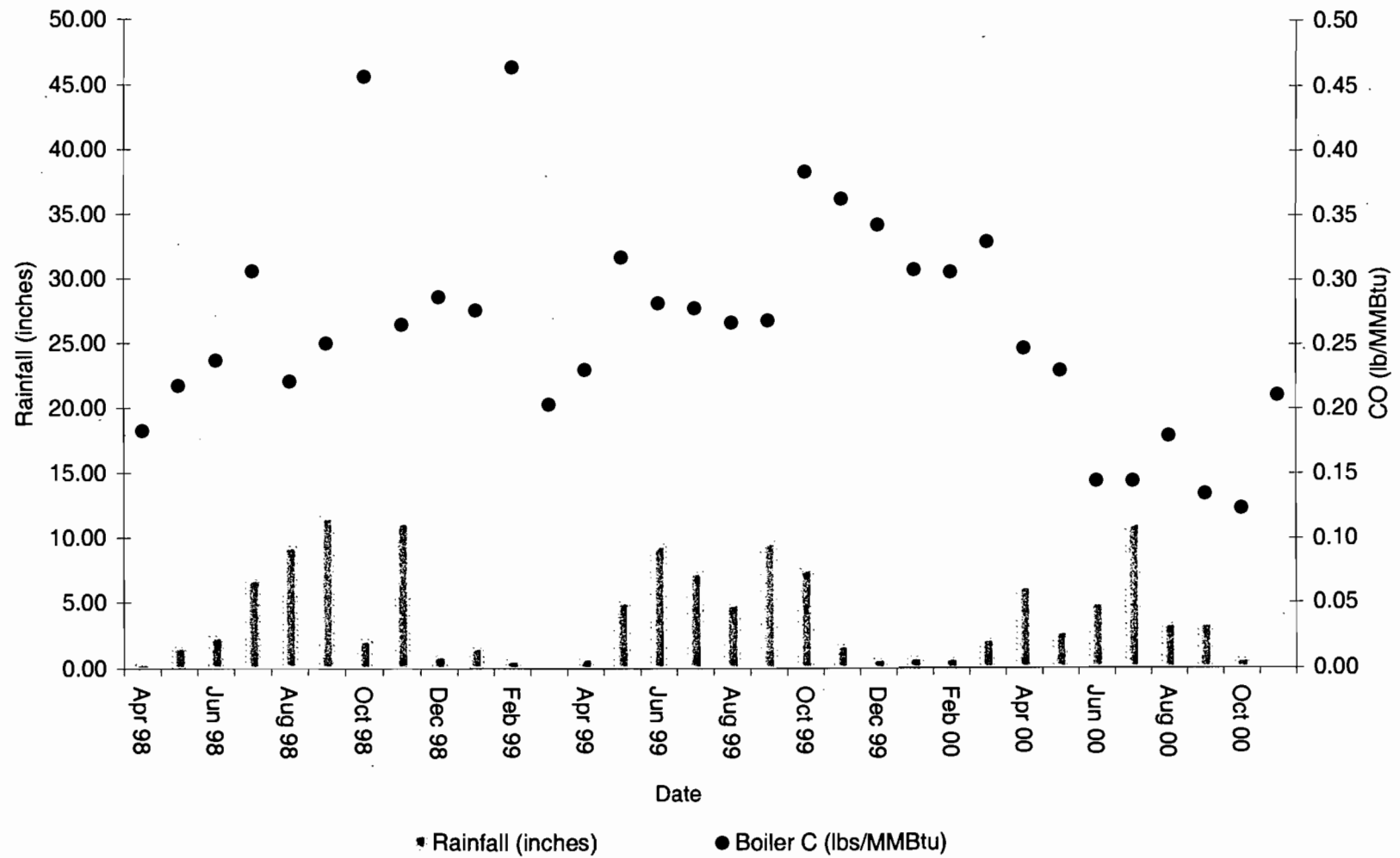


Figure 2-4. Unit A: Actual Daily SO<sub>2</sub> Emissions  
June 1999 - October 2000

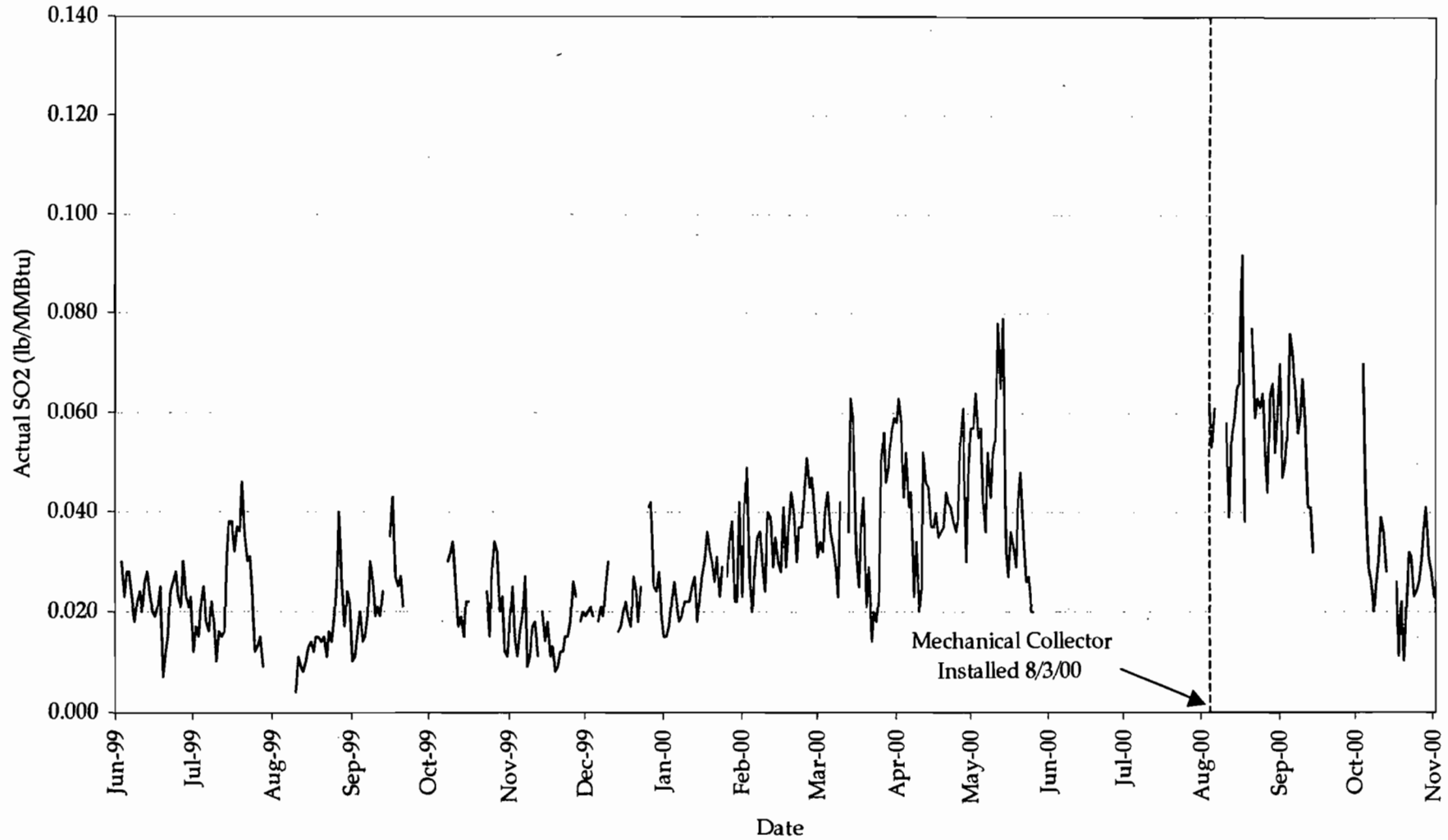
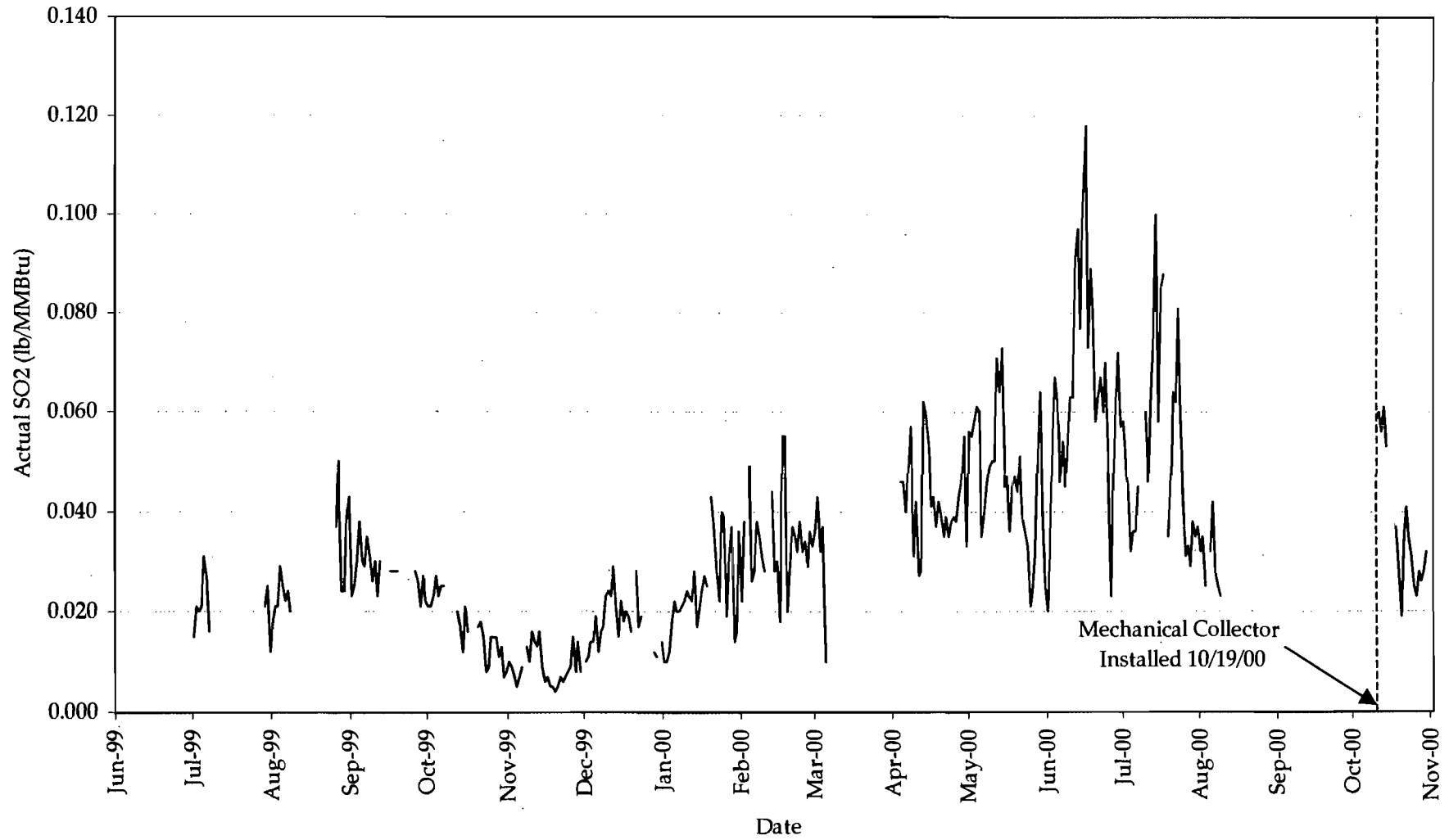


Figure 2-5. Unit B: Actual Daily SO<sub>2</sub> Emissions  
June 1999 - October 2000





**Figure 2-6. Unit C: Actual Daily SO<sub>2</sub> Emissions  
June 1999 - October 2000**

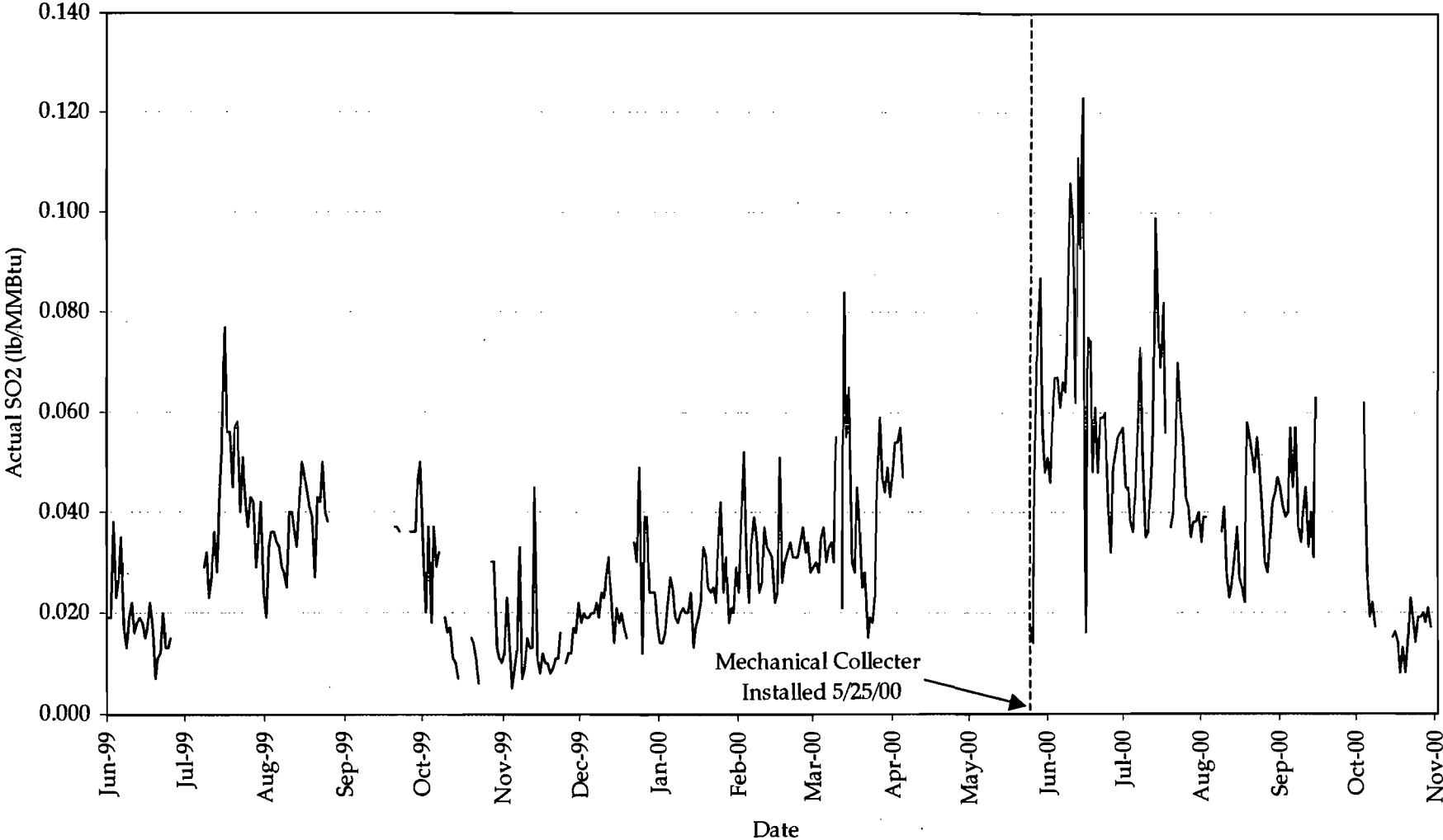


Figure 2-7. Potential SO<sub>2</sub> Emissions from Bagasse Fuel  
12/98 - 12/99

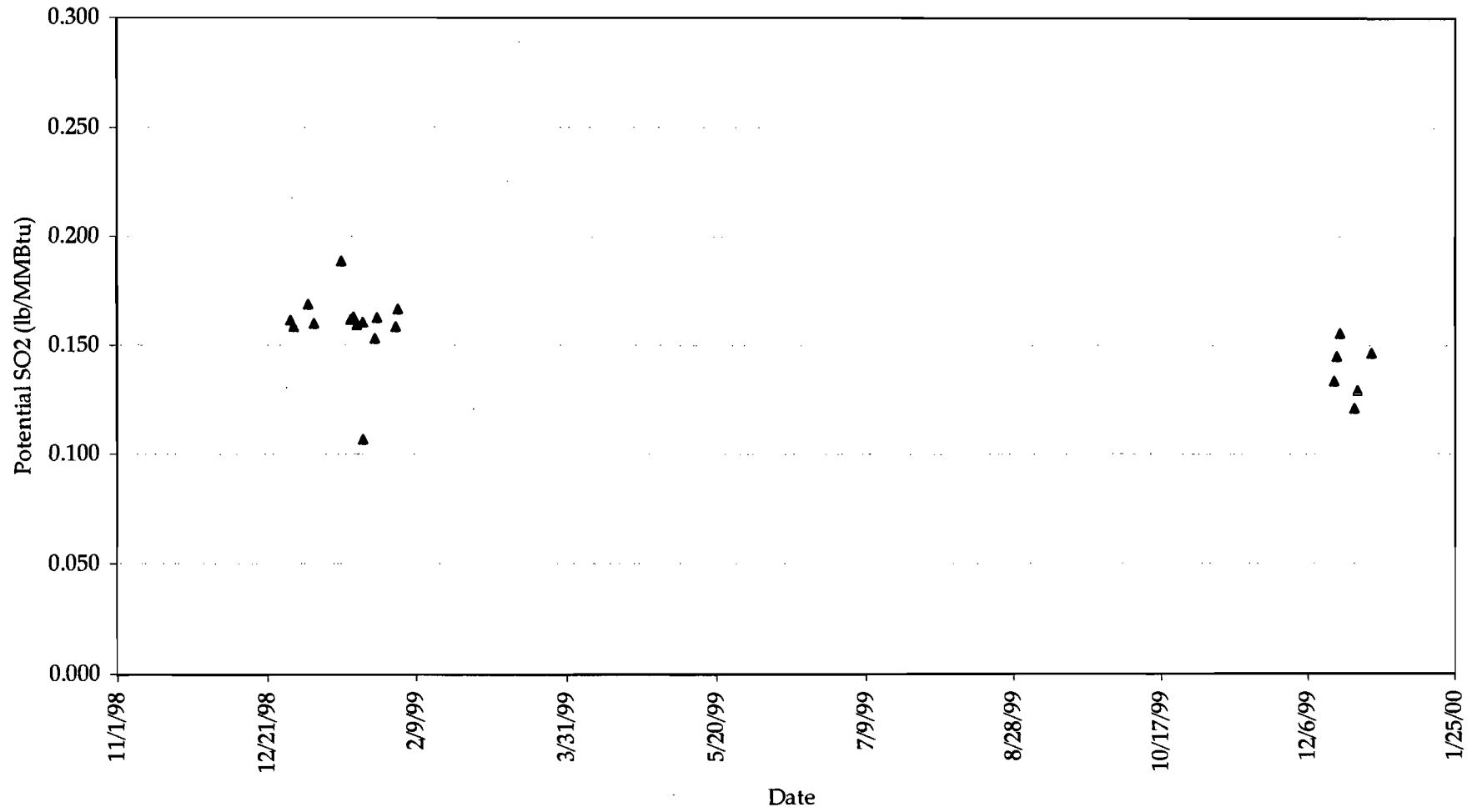


Figure 2-8. Potential SO<sub>2</sub> Emissions from Wood Fuel  
1/99 - 10/00

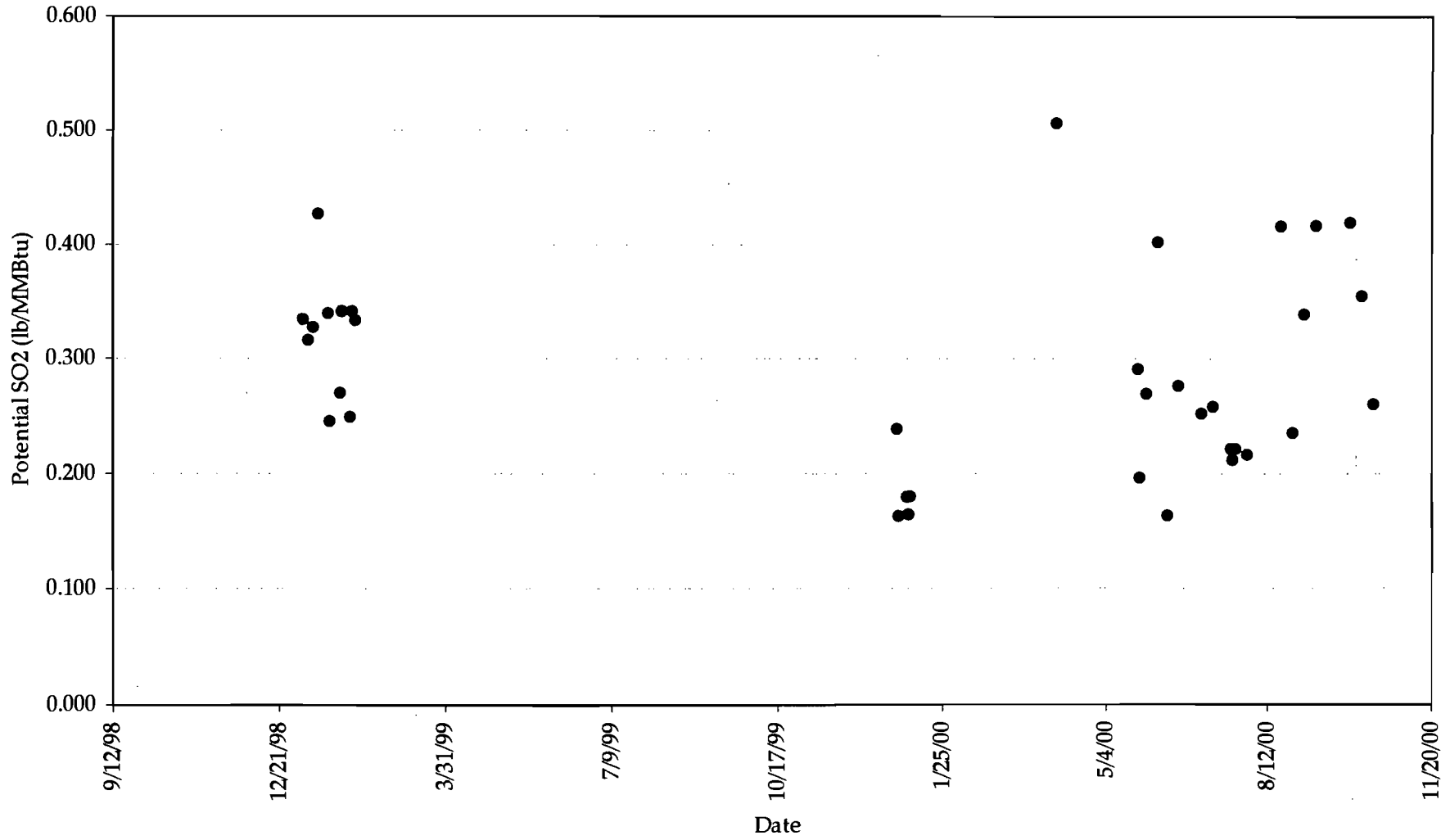


Figure 2-9. OkPLP Boiler A Inherent SO<sub>2</sub> Removal Efficiency

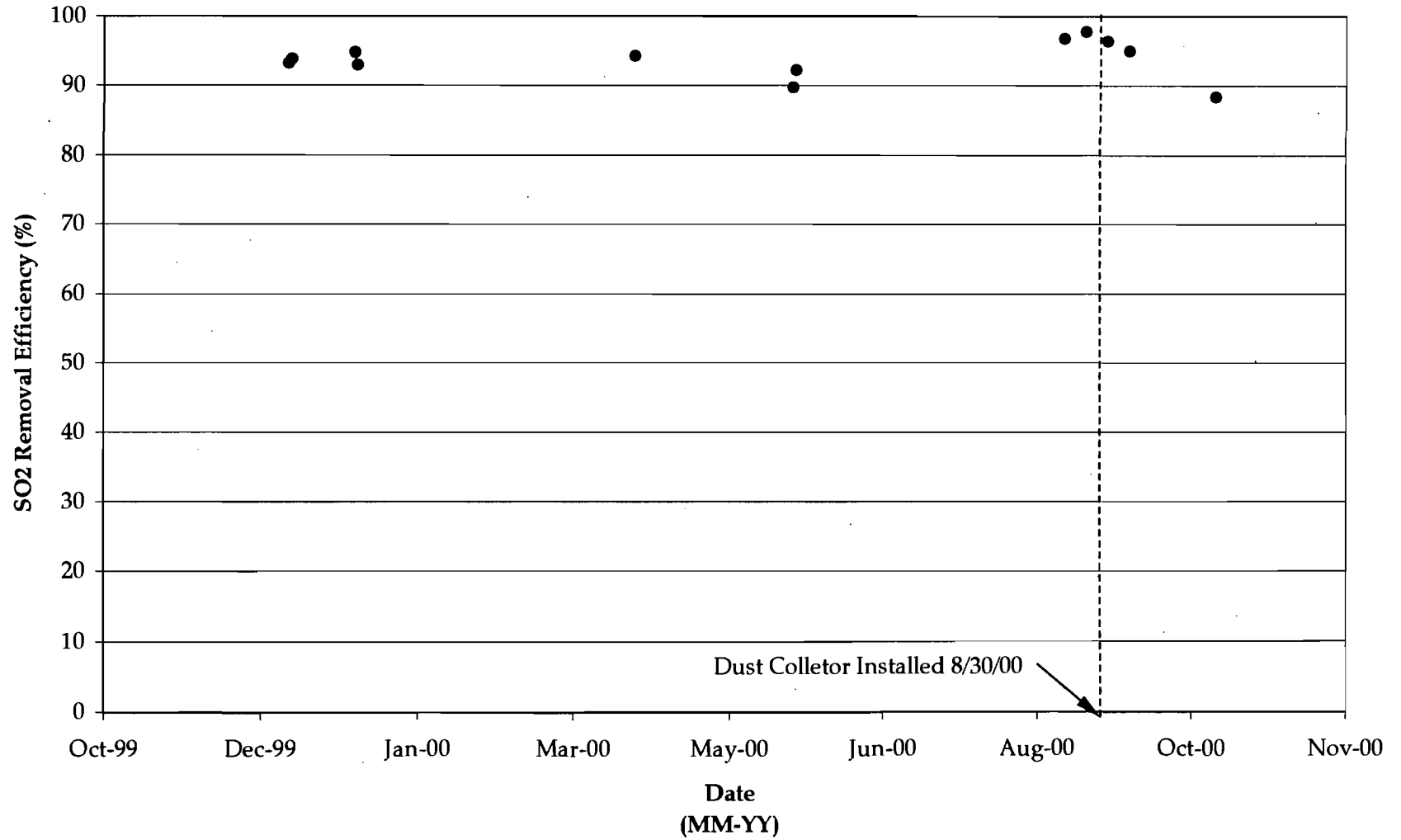


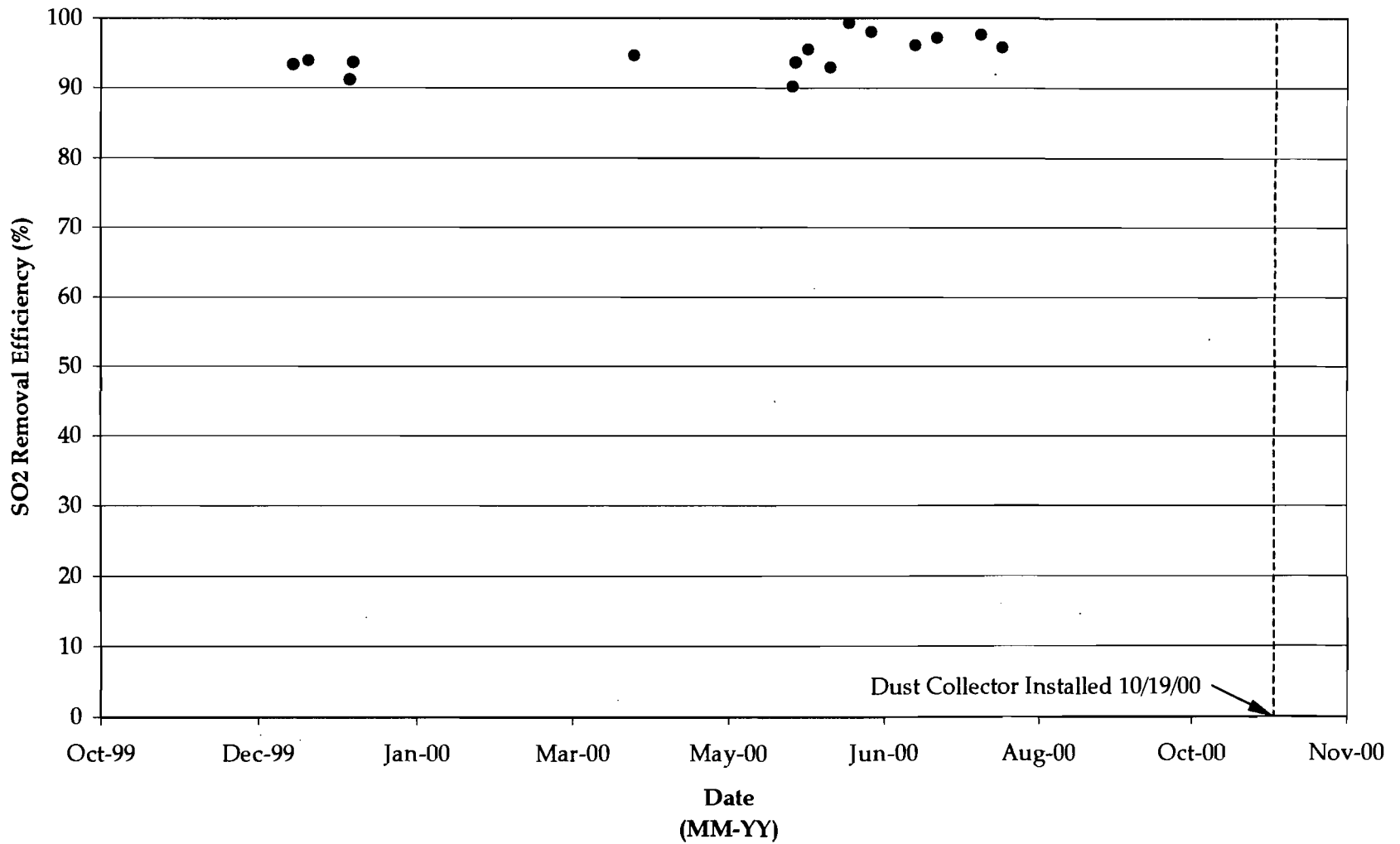
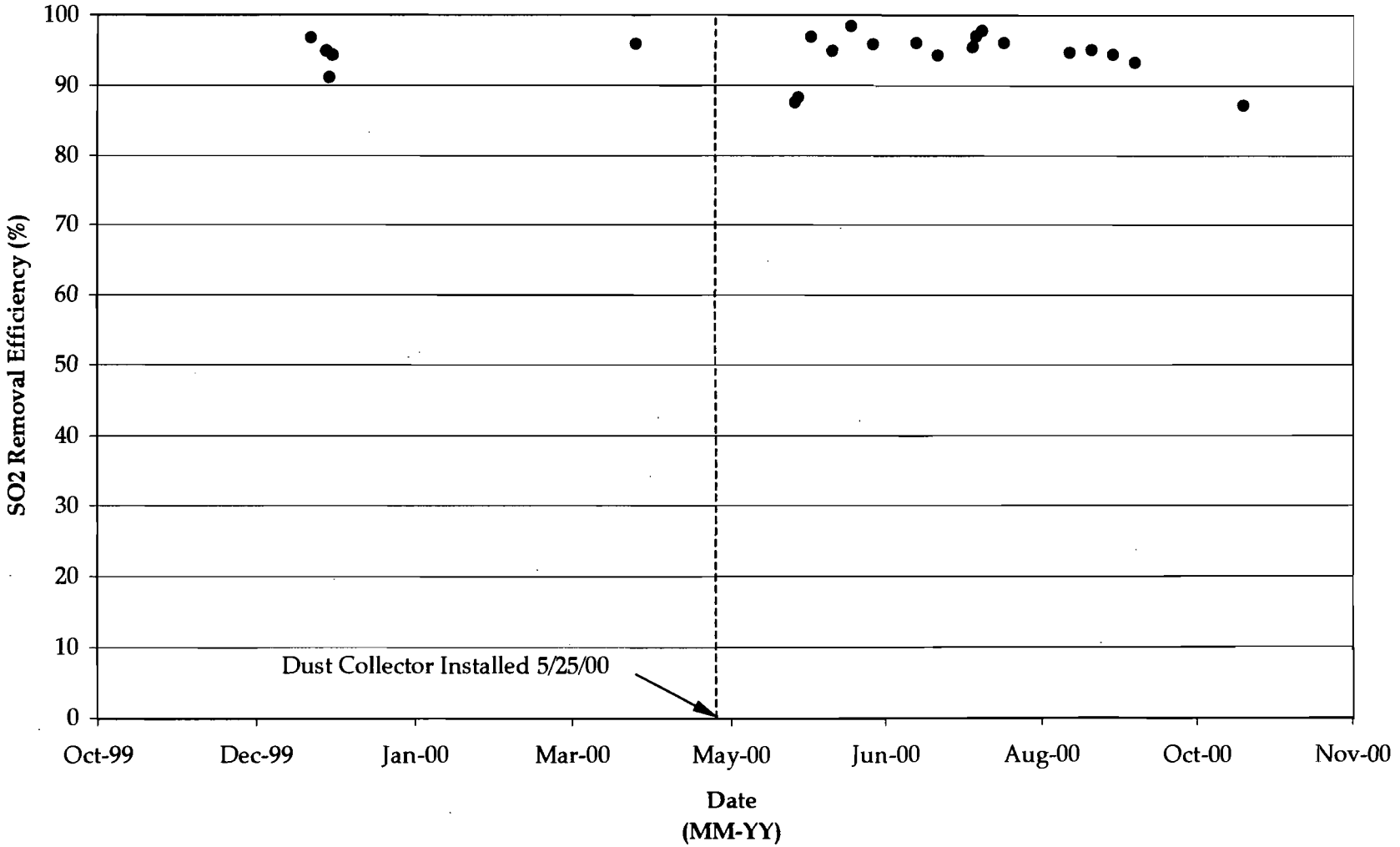
Figure 2-10. OkPLP Boiler B Inherent SO<sub>2</sub> Removal Efficiency

Figure 2-11. OkPLP Boiler C Inherent SO<sub>2</sub> Removal Efficiency



APPENDIX

Table A. Summary of Wood Fuel Analyses, Okeelanta Power L.P.

| Sample ID | Test Date<br>(MM/DD/YY) | As Received Analysis |               |                           | Potential                                      | Daily                                    |
|-----------|-------------------------|----------------------|---------------|---------------------------|--|--|
|           |                         | Moisture<br>(%)      | Sulfur<br>(%) | Heating Value<br>(Btu/lb) | SO <sub>2</sub> Emission<br>Rate<br>(lb/MMBtu) | Average<br>SO <sub>2</sub><br>(lb/MMBtu) |
| B-1030    | 1/5/99                  | 37.11                | 0.09          | 4,972                     | 0.36   |  |
| B-1220    | 1/5/99                  | 39.99                | 0.08          | 4,769                     | 0.34   |  |
| B-1510    | 1/5/99                  | 38.86                | 0.07          | 4,583                     | 0.31   | 0.334                                    |
| C-0915    | 1/8/99                  | 33.40                | 0.07          | 5,359                     | 0.26   |  |
| C-1405    | 1/8/99                  | 35.74                | 0.10          | 4,804                     | 0.42   |  |
| C-1545    | 1/8/99                  | 33.80                | 0.07          | 5,172                     | 0.27   | 0.316                                    |
| C-1115    | 1/11/99                 | 30.44                | 0.05          | 5,429                     | 0.18   |  |
| C-1400    | 1/11/99                 | 41.71                | 0.09          | 4,019                     | 0.45   |  |
| C-1615    | 1/11/99                 | 34.33                | 0.07          | 3,997                     | 0.35   | 0.327                                    |
| C-1305    | 1/14/99                 | 35.95                | 0.10          | 5,172                     | 0.39   |  |
| C-1530    | 1/14/99                 | 33.57                | 0.11          | 5,255                     | 0.42   |  |
| C-1650    | 1/14/99                 | 34.39                | 0.11          | 4,634                     | 0.47   | 0.427                                    |
| B-1125    | 1/20/99                 | 36.60                | 0.10          | 4,907                     | 0.41   |  |
| B-1400A   | 1/20/99                 | 31.89                | 0.08          | 5,260                     | 0.30   |  |
| B-1455    | 1/20/99                 | 34.03                | 0.08          | 5,220                     | 0.31   | 0.339                                    |
| B-0950    | 1/21/99                 | 35.68                | 0.07          | 5,229                     | 0.27   |  |
| B-1400B   | 1/21/99                 | 33.90                | 0.07          | 5,298                     | 0.26   |  |
| B-1530    | 1/21/99                 | 35.32                | 0.05          | 4,894                     | 0.20   | 0.245                                    |
| A-1300    | 1/27/99                 | 27.77                | 0.08          | 5,920                     | 0.27   | 0.270                                    |
| A-1125    | 1/28/99                 | 38.85                | 0.06          | 3,516                     | 0.34   | 0.341                                    |
| A-0950    | 2/2/99                  | 38.52                | 0.06          | 4,394                     | 0.27   |  |
| A-1115    | 2/2/99                  | 34.04                | 0.06          | 5,197                     | 0.23   |  |
| A-1315    | 2/2/99                  | 35.45                | 0.06          | 4,927                     | 0.24   | 0.249                                    |
| A-1705    | 2/3/99                  | 34.26                | 0.08          | 4,686                     | 0.34   | 0.341                                    |
| A-1030    | 2/5/99                  | 33.76                | 0.07          | 4,509                     | 0.31   |  |
| A-1325    | 2/5/99                  | 33.94                | 0.08          | 4,582                     | 0.35   | 0.334                                    |
| B-C20     | 12/29/99                | 41.35                | 0.05          | 4,850                     | 0.21   |  |
| B-C21     | 12/29/99                | 40.01                | 0.04          | 4,949                     | 0.16   | 0.239                                    |
| B-C22     | 12/30/99                | 41.10                | 0.04          | 5,073                     | 0.16   |  |
| B-C23     | 12/30/99                | 43.08                | 0.04          | 4,759                     | 0.17   | 0.162                                    |
| B-B24     | 1/4/00                  | 42.53                | 0.04          | 4,845                     | 0.17   |  |
| B-B25     | 1/4/00                  | 42.65                | 0.05          | 4,835                     | 0.21   |  |
| B-B26     | 1/4/00                  | 40.91                | 0.04          | 4,833                     | 0.17   | 0.179                                    |
| B-A28     | 1/5/00                  | 40.40                | 0.04          | 5,030                     | 0.16   |  |
| B-B27     | 1/5/00                  | 41.20                | 0.04          | 4,739                     | 0.17   | 0.164                                    |
| B-A29     | 1/6/00                  | 40.86                | 0.05          | 5,031                     | 0.20   |  |
| B-A30     | 1/6/00                  | 39.74                | 0.04          | 4,919                     | 0.16   |  |
| B-A31     | 1/6/00                  | 39.54                | 0.04          | 5,029                     | 0.16   |  |
| B-A32     | 1/6/00                  | 39.67                | 0.05          | 5,029                     | 0.20   | 0.180                                    |
| 169       | 4/4/00                  | 23.82                | 0.03          | 4,417                     | 0.14   |  |
| 268       | 4/4/00                  | 35.51                | 0.16          | 5,298                     | 0.60   |  |
| 1200      | 4/4/00                  | 31.21                | 0.04          | 4,235                     | 0.19   |  |



Table A. Summary of Wood Fuel Analyses, Okeelanta Power L.P.

| Sample ID  | Test Date<br>(MM/DD/YY) | As Received Analysis |               |                           | Potential                                      | Daily                                    |
|------------|-------------------------|----------------------|---------------|---------------------------|--|--|
|            |                         | Moisture<br>(%)      | Sulfur<br>(%) | Heating Value<br>(Btu/lb) | SO <sub>2</sub> Emission<br>Rate<br>(lb/MMBtu) | Average<br>SO <sub>2</sub><br>(lb/MMBtu) |
| 1202       | 4/4/00                  | 30.38                | 0.14          | 5,866                     | 0.48   |  |
| 1204       | 4/4/00                  | 30.29                | 0.04          | 4,606                     | 0.17   |  |
| 1612       | 4/4/00                  | 26.04                | 0.22          | 5,216                     | 0.84   |  |
| 7063       | 4/4/00                  | 23.94                | 0.07          | 4,190                     | 0.33   |  |
| 7159       | 4/4/00                  | 31.36                | 0.15          | 5,744                     | 0.52   |  |
| 1611A      | 4/4/00                  | 33.25                | 0.27          | 4,571                     | 1.18   |  |
| 1611B      | 4/4/00                  | 30.83                | 0.23          | 4,835                     | 0.95   |  |
| 734A       | 4/4/00                  | 34.84                | 0.15          | 5,182                     | 0.58   |  |
| 734B       | 4/4/00                  | 31.75                | 0.02          | 4,929                     | 0.08   | 0.506                                    |
| BF-170     | 5/25/00                 | 31.52                | 0.08          | 5,508                     | 0.29   | 0.290                                    |
| BF2-171    | 5/26/00                 | 49.95                | 0.04          | 4,089                     | 0.20   | 0.196                                    |
| BF-172A    | 5/30/00                 | 40.65                | 0.08          | 4,346                     | 0.37   |  |
| BF2-173    | 5/30/00                 | 41.72                | 0.04          | 4,707                     | 0.17   | 0.269                                    |
| #1 Reclaim | 6/6/00                  | 32.72                | 0.05          | 4,831                     | 0.21   |  |
| #2 Reclaim | 6/6/00                  | 30.08                | 0.15          | 5,024                     | 0.60   | 0.402                                    |
| BF-172B    | 6/12/00                 | 36.85                | 0.04          | 4,882                     | 0.16   |  |
| BF2-173A   | 6/12/00                 | 51.74                | 0.03          | 3,869                     | 0.16   |  |
| BF2-173B   | 6/12/00                 | 41.72                | 0.04          | 4,707                     | 0.17   | 0.163                                    |
| BF-174     | 6/19/00                 | 33.98                | 0.09          | 5,091                     | 0.35   |  |
| BF2-175    | 6/19/00                 | 50.40                | 0.04          | 4,000                     | 0.20   | 0.277                                    |
| BF-178     | 7/3/00                  | 36.97                | 0.08          | 4,638                     | 0.34   |  |
| BF2-179    | 7/3/00                  | 52.74                | 0.03          | 3,755                     | 0.16   | 0.252                                    |
| BA-7/10    | 7/10/00                 | 50.75                | 0.05          | 4,060                     | 0.25   |  |
| BF-180     | 7/10/00                 | 39.62                | 0.07          | 4,900                     | 0.29   |  |
| BF2-181    | 7/10/00                 | 55.75                | 0.04          | 3,592                     | 0.22   |  |
| HOX-1 7/11 | 7/10/00                 | 29.65                | 0.09          | 5,511                     | 0.33   |  |
| HOX-2 7/11 | 7/10/00                 | 31.07                | 0.06          | 5,720                     | 0.21   | 0.258                                    |
| BF-184     | 7/21/00                 | 34.42                | 0.05          | 4,899                     | 0.20   |  |
| BF2-185    | 7/21/00                 | 51.92                | 0.03          | 4,024                     | 0.15   |  |
| C-Boiler   | 7/21/00                 | 34.91                | 0.05          | 4,810                     | 0.21   |  |
| C-Test-1   | 7/21/00                 | 35.52                | 0.08          | 4,911                     | 0.33   |  |
| C-Test-2   | 7/21/00                 | 34.02                | 0.06          | 5,447                     | 0.22   | 0.221                                    |
| C-BLR 0900 | 7/22/00                 | 35.80                | 0.05          | 4,497                     | 0.22   |  |
| C-BLR 1100 | 7/22/00                 | 37.90                | 0.04          | 5,008                     | 0.16   |  |
| C-Test-3   | 7/22/00                 | 39.46                | 0.06          | 5,002                     | 0.24   |  |
| C-Test-4   | 7/22/00                 | 36.54                | 0.06          | 5,364                     | 0.22   | 0.211                                    |
| BF-NS      | 7/24/00                 | 39.46                | 0.04          | 4,585                     | 0.17   |  |
| BF-182A    | 7/24/00                 | 42.88                | 0.04          | 4,426                     | 0.18   |  |
| BF2-183A   | 7/24/00                 | 58.72                | 0.03          | 3,366                     | 0.18   |  |
| BF-182B    | 7/24/00                 | 38.69                | 0.09          | 4,320                     | 0.42   |  |
| BF-186     | 7/24/00                 | 36.32                | 0.07          | 4,841                     | 0.29   |  |
| BF2-183B   | 7/24/00                 | 56.33                | 0.03          | 3,455                     | 0.17   |  |

Table A. Summary of Wood Fuel Analyses, Okeelanta Power L.P.

| Sample ID | Test Date<br>(MM/DD/YY) | As Received Analysis |               |                           | Potential                                      | Daily                                    |
|-----------|-------------------------|----------------------|---------------|---------------------------|--|--|
|           |                         | Moisture<br>(%)      | Sulfur<br>(%) | Heating Value<br>(Btu/lb) | SO <sub>2</sub> Emission<br>Rate<br>(lb/MMBtu) | Average<br>SO <sub>2</sub><br>(lb/MMBtu) |
| BF2-187   | 7/24/00                 | 63.70                | 0.02          | 2,917                     | 0.14   | 0.221                                    |
| BF-188    | 7/31/00                 | 36.66                | 0.07          | 4,717                     | 0.30   |  |
| BF2-189   | 7/31/00                 | 63.35                | 0.02          | 2,957                     | 0.14   | 0.216                                    |
| BF-194    | 8/21/00                 | 32.67                | 0.14          | 5,135                     | 0.55   |  |
| BF2-195   | 8/21/00                 | 49.11                | 0.06          | 4,177                     | 0.29   | 0.416                                    |
| BF-196    | 8/28/00                 | 40.10                | 0.07          | 4,796                     | 0.29   |  |
| BF2-197   | 8/28/00                 | 58.58                | 0.03          | 3,370                     | 0.18   | 0.235                                    |
| BF-198    | 9/4/00                  | 39.44                | 0.12          | 4,371                     | 0.55   |  |
| BF2-199   | 9/4/00                  | 61.84                | 0.02          | 3,094                     | 0.13   | 0.339                                    |
| BF-200    | 9/11/00                 | 43.35                | 0.13          | 4,027                     | 0.65   |  |
| BF2-201   | 9/11/00                 | 60.88                | 0.03          | 3,183                     | 0.19   | 0.417                                    |
| BF-202    | 10/2/00                 | 34.71                | 0.07          | 5,583                     | 0.25   |  |
| BF2-203   | 10/2/00                 | 49.72                | 0.12          | 4,081                     | 0.59   | 0.419                                    |
| BF-204    | 10/9/00                 | 39.78                | 0.08          | 4,657                     | 0.34   |  |
| BF2-205   | 10/9/00                 | 59.94                | 0.06          | 3,279                     | 0.37   | 0.355                                    |
| BF-206    | 10/16/00                | 38.15                | 0.09          | 4,854                     | 0.37   |  |
| BF2-207   | 10/16/00                | <u>50.16</u>         | <u>0.03</u>   | <u>3,991</u>              | 0.15   | 0.261                                    |
| Average   |                         | 39.43                | 0.07          | 4,664                     |  |  |

Table B. Summary of Bagasse Fuel Analyses, Okeelanta Power L.P.

| Sample ID | Test Date<br>(MM/DD/YY) | As Received Analysis |               |                           | Potential                                      | Daily                                    |
|-----------|-------------------------|----------------------|---------------|---------------------------|--|--|
|           |                         | Moisture<br>(%)      | Sulfur<br>(%) | Heating Value<br>(Btu/lb) | SO <sub>2</sub> Emission<br>Rate<br>(lb/MMBtu) | Average<br>SO <sub>2</sub><br>(lb/MMBtu) |
| C-1130    | 12/29/98                | 55.08                | 0.03          | 3,714                     | 0.16   |  |
| C-1630    | 12/29/98                | 54.88                | 0.03          | 3,715                     | 0.16   | 0.162                                    |
| C-0837    | 12/30/98                | 54.26                | 0.03          | 3,780                     | 0.16   | 0.159                                    |
| B-1240    | 1/4/99                  | 56.30                | 0.03          | 3,607                     | 0.17   |  |
| B-1515    | 1/4/99                  | 55.20                | 0.03          | 3,619                     | 0.17   |  |
| B-1700    | 1/4/99                  | 57.57                | 0.03          | 3,441                     | 0.17   | 0.169                                    |
| C-1250    | 1/6/99                  | 54.71                | 0.03          | 3,741                     | 0.16   |  |
| C-1402    | 1/6/99                  | 54.95                | 0.03          | 3,716                     | 0.16   |  |
| C-1714    | 1/6/99                  | 54.21                | 0.03          | 3,790                     | 0.16   | 0.160                                    |
| C-0950    | 1/15/99                 | 54.53                | 0.04          | 3,737                     | 0.21   | 0.189                                    |
| C-1425    | 1/15/99                 | 54.98                | 0.03          | 3,680                     | 0.16   |  |
| B-1630    | 1/18/99                 | 54.17                | 0.03          | 3,779                     | 0.16   |  |
| B-1400    | 1/18/99                 | 55.88                | 0.03          | 3,621                     | 0.17   |  |
| B-1630    | 1/18/99                 | 54.96                | 0.03          | 3,725                     | 0.16   | 0.162                                    |
| B-1200    | 1/19/99                 | 55.40                | 0.03          | 3,682                     | 0.16   |  |
| B-1400    | 1/19/99                 | 55.31                | 0.03          | 3,677                     | 0.16   | 0.163                                    |
| B-0900    | 1/20/99                 | 54.57                | 0.03          | 3,762                     | 0.16   | 0.159                                    |
| C-1140    | 1/22/99                 | 54.67                | 0.03          | 3,734                     | 0.16   | 0.161                                    |
| A-0904    | 1/22/99                 | 54.15                | 0.02          | 3,712                     | 0.11   |  |
| A-1154    | 1/22/99                 | 54.16                | 0.02          | 3,769                     | 0.11   | 0.107                                    |
| A-1120    | 1/26/99                 | 63.47                | 0.02          | 2,953                     | 0.14   |  |
| A-1330    | 1/26/99                 | 53.69                | 0.03          | 3,740                     | 0.16   |  |
| A-1555    | 1/26/99                 | 55.13                | 0.03          | 3,656                     | 0.16   | 0.153                                    |
| A-0930    | 1/27/99                 | 54.43                | 0.03          | 3,689                     | 0.16   | 0.163                                    |
| A-1455    | 2/2/99                  | 53.39                | 0.03          | 3,790                     | 0.16   | 0.158                                    |
| A-0930    | 2/3/99                  | 55.96                | 0.03          | 3,605                     | 0.17   | 0.166                                    |
| B-A1      | 12/15/99                | 57.03                | 0.03          | 3,542                     | 0.17   |  |
| B-A2      | 12/15/99                | 60.41                | 0.02          | 3,234                     | 0.12   |  |
| B-A3      | 12/15/99                | 54.82                | 0.02          | 3,704                     | 0.11   | 0.134                                    |
| B-A4      | 12/16/99                | 58.01                | 0.03          | 3,451                     | 0.17   |  |
| B-A5      | 12/16/99                | 57.57                | 0.03          | 3,490                     | 0.17   |  |
| B-A6      | 12/16/99                | 56.01                | 0.02          | 3,634                     | 0.11   |  |
| B-A7      | 12/16/99                | 60.56                | 0.02          | 3,254                     | 0.12   | 0.145                                    |
| B-B8      | 12/17/99                | 59.58                | 0.03          | 3,298                     | 0.18   |  |
| B-B9      | 12/17/99                | 56.54                | 0.03          | 3,579                     | 0.17   |  |
| B-B10     | 12/17/99                | 58.46                | 0.02          | 3,401                     | 0.12   | 0.156                                    |
| B-B11     | 12/22/99                | 57.03                | 0.02          | 3,495                     | 0.11   |  |
| B-B12     | 12/22/99                | 54.93                | 0.03          | 3,889                     | 0.15   |  |
| B-B13     | 12/22/99                | 47.23                | 0.02          | 4,229                     | 0.09   | 0.121                                    |
| B-C14     | 12/23/99                | 53.92                | 0.02          | 3,772                     | 0.11   |  |
| B-C15     | 12/23/99                | 52.42                | 0.02          | 3,892                     | 0.10   |  |
| B-C16     | 12/23/99                | 58.76                | 0.03          | 3,359                     | 0.18   | 0.129                                    |
| B-C17     | 12/28/99                | 55.71                | 0.03          | 3,626                     | 0.17   |  |
| B-C18     | 12/28/99                | 55.28                | 0.03          | 3,594                     | 0.17   |  |
| B-C19     | 12/28/99                | 53.79                | 0.02          | 3,731                     | 0.11   | 0.147                                    |
| Average   |                         | 55.65                | 0.03          | 3,636                     | 0.15   | 0.153                                    |

Table C. Estimated Inherent SO<sub>2</sub> Removal Efficiency for Boilers A, B and C

| Date<br>(MM/DD/YY) | Boiler | Fuel         | Fuel Analysis   | CEM Data   | Removal<br>Efficiency<br>(%) |
|--------------------|--------|--------------|---|--|------------------------------|
|                    |        |              | Potential<br>SO <sub>2</sub><br>Emissions<br>(lb/MMBtu) | Actual<br>24-Hour<br>Average SO <sub>2</sub><br>(lb/MMBtu) |                              |
| 12/15/99           | A      | Bagasse      | 0.134   | 0.017  | 93.1                         |
| 12/16/99           | A      | Bagasse      | 0.145   | 0.020  | 93.8                         |
| 01/05/00           | A      | Wood         | 0.164   | 0.026  | 94.7                         |
| 01/06/00           | A      | Wood         | 0.180   | 0.022  | 92.8                         |
| 04/04/00           | A      | Bagasse/Wood | 0.296   | 0.043  | 94.1                         |
| 05/25/00           | A      | Bagasse/Wood | 0.228   | 0.020  | 89.6                         |
| 05/26/00           | A      | Bagasse/Wood | 0.179   | 0.020  | 92.1                         |
| 08/21/00           | A      | Bagasse/Wood | 0.334   | 0.077  | 96.7                         |
| 08/28/00           | A      | Bagasse/Wood | 0.210   | 0.064  | 97.7                         |
| 09/04/00           | A      | Bagasse/Wood | 0.267   | 0.058  | 96.4                         |
| 09/11/00           | A      | Bagasse/Wood | 0.345   | 0.057  | 94.9                         |
| 10/09/00           | A      | Bagasse/Wood | 0.318   | 0.025  | 88.3                         |
| 12/17/99           | B      | Bagasse      | 0.156   | 0.020  | 93.2                         |
| 12/22/99           | B      | Bagasse      | 0.121   | 0.017  | 93.9                         |
| 01/04/00           | B      | Wood         | 0.179   | 0.018  | 91.1                         |
| 01/05/00           | B      | Wood         | 0.164   | 0.022  | 93.5                         |
| 04/04/00           | B      | Bagasse/Wood | 0.296   | 0.046  | 94.6                         |
| 05/25/00           | B      | Bagasse/Wood | 0.228   | 0.021  | 90.1                         |
| 05/26/00           | B      | Bagasse/Wood | 0.179   | 0.024  | 93.6                         |
| 05/30/00           | B      | Bagasse/Wood | 0.237   | 0.042  | 95.4                         |
| 06/06/00           | B      | Bagasse/Wood | 0.374   | 0.046  | 92.9                         |
| 06/12/00           | B      | Wood         | 0.163   | 0.091  | 99.2                         |
| 06/19/00           | B      | Bagasse/Wood | 0.248   | 0.080  | 97.9                         |
| 07/03/00           | B      | Bagasse/Wood | 0.224   | 0.045  | 96.0                         |
| 07/10/00           | B      | Bagasse/Wood | 0.235   | 0.060  | 97.1                         |
| 07/24/00           | B      | Bagasse/Wood | 0.195   | 0.057  | 97.6                         |
| 07/31/00           | B      | Bagasse/Wood | 0.197   | 0.037  | 95.7                         |
| 12/23/99           | C      | Bagasse      | 0.129   | 0.030  | 96.7                         |
| 12/28/99           | C      | Bagasse      | 0.147   | 0.024  | 94.9                         |
| 12/29/99           | C      | Wood         | 0.239   | 0.024  | 91.0                         |
| 12/30/99           | C      | Wood         | 0.162   | 0.024  | 94.3                         |
| 04/04/00           | C      | Bagasse/Wood | 0.296   | 0.057  | 95.8                         |
| 05/25/00           | C      | Bagasse/Wood | 0.228   | 0.017  | 87.6                         |
| 05/26/00           | C      | Bagasse/Wood | 0.179   | 0.014  | 88.2                         |
| 05/30/00           | C      | Bagasse/Wood | 0.237   | 0.057  | 96.8                         |
| 06/06/00           | C      | Bagasse/Wood | 0.374   | 0.061  | 94.9                         |
| 06/12/00           | C      | Wood         | 0.163   | 0.062  | 98.4                         |
| 06/19/00           | C      | Bagasse/Wood | 0.248   | 0.048  | 95.8                         |
| 07/03/00           | C      | Bagasse/Wood | 0.224   | 0.045  | 96.0                         |
| 07/10/00           | C      | Bagasse/Wood | 0.235   | 0.035  | 94.3                         |
| 07/21/00           | C      | Wood         | 0.221   | 0.040  | 95.5                         |
| 07/22/00           | C      | Wood         | 0.211   | 0.053  | 97.0                         |
| 07/24/00           | C      | Bagasse/Wood | 0.195   | 0.060  | 97.7                         |
| 07/31/00           | C      | Bagasse/Wood | 0.197   | 0.040  | 96.1                         |
| 08/21/00           | C      | Bagasse/Wood | 0.334   | 0.052  | 94.6                         |
| 08/28/00           | C      | Bagasse/Wood | 0.210   | 0.035  | 95.0                         |
| 09/04/00           | C      | Bagasse/Wood | 0.267   | 0.040  | 94.3                         |
| 09/11/00           | C      | Bagasse/Wood | 0.345   | 0.045  | 93.3                         |
| 10/16/00           | C      | Bagasse/Wood | 0.222   | 0.016  | 87.1                         |

Unit A dust collector- 8/30/00

Unit B dust collector- 10/19/00

Unit C dust collector- 5/25/00



OKEELANTA CO-GENERATION FACILITY

**RECEIVED**

JAN 02 2001

December 27, 2000

**BUREAU OF AIR REGULATION**

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

Attn: C.H. Fancy, P.E., Chief  
Bureau of Air Regulation

Re: Okeelanta Power L.P.  
DEP File No. 0990332-013-AC; PSD-FL-196L  
Application to Modify CO/SO2 Emission Limits

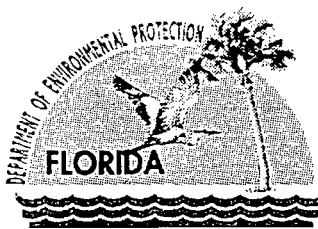
Dear Mr. Fancy:

Please find enclosed six (6) copies of the Application to Modify CO/SO2 Emission Limits for the Okeelanta Power L.P. Also attached is check # 28929 in the amount of \$7,500 to pay the application processing fee. If you have any questions please contact me at (561) 993-1003 or David Buff at (352) 336-5600.

Sincerely,

James M. Meriwether  
Environmental and Safety Manager

cc: (w attachment)  
Sherrill Culliver – FDEP/Ft. Myers  
Ajaya K. Satyal – PBCHD  
(w/o attachment)  
Rodney Williams  
David Buff  
David Dee



# Department of Environmental Protection

Jeb Bush  
Governor

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

David B. Struhs  
Secretary

June 22, 1999

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. James Meriwether  
Environmental Manager  
Okeelanta Cogeneration Facility  
Post Office Box 9  
South Bay, Florida 33493

RE: DEP File No. 0990332-010-AC (PSD-FL-196F)  
Permit Modifications

Dear Mr. Meriwether:

This is in response to Golder Associates' letter dated December 14, 1998 and fee received February 2, 1999 requesting changes to the subject construction permit. The Department considered the requests and agrees to modify the permit conditions as indicated below. The request for revising the 0.35 lb CO/MMBtu limit from a 24-hour averaging time to a 30-day rolling average was approved. However, the requested increase to 0.5 lb CO/MMBtu was not granted based on our conclusion from the test data that the longer term average can be met at 0.35 lb/MMBtu. The requested modifications of provisions related to excess emissions and other changes are indicated by the underlined additions.

The permit is hereby modified as shown below. The excess fee paid will be refunded separately.

## SPECIFIC CONDITION NO. 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:

| Pollutant                       | EMISSION LIMIT (per boiler) <sup>d</sup> |         |            |         |            |         | Total <sup>e</sup><br>Three<br>Boilers<br>(TPY) |
|---------------------------------|--|---------|------------|---------|------------|---------|---|
|                                 | Biomass                                  |         | No. 2 Oil  |         | Bit. Coal  |         |   |
|                                 | (lb/MMBtu)                               | (lb/hr) | (lb/MMBtu) | (lb/hr) | (lb/MMBtu) | (lb/hr) |   |
| Particulate (TSP)               | 0.03                                     | 21.5    | 0.03       | 14.7    | 0.03       | 14.7    | 172.5   |
| Particulate (PM <sub>10</sub> ) | 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                  |  |         |            |         |            |         |   |
| (Bagasse)                       | 0.02 a                                   |         |            |         | 1.2 a      |         | 1,154.3 f                                       |
| (Wood Waste)                    | 0.05a c                                  |         |            |         |            |         |   |
| Nitrogen Oxides                 |  |         |            |         |            |         |   |
| Annual average                  | 0.15 a                                   | 107.3 a | 0.15 a     | 73.5 a  | 0.17 a     | 83.3 a  | 862.5   |

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|   |                         |          |                      |         |                      |         |          |
|---|-------------------------|----------|----------------------|---------|----------------------|---------|----------|
| Carbon Monoxide<br>24-hour 30-day<br>rolling avg. | 0.35 a                  | 250.3 a  | 0.35 a               | 171.5 a | 0.35 a               | 171.5 a | 2,012.5  |
| Volatile Organic<br>Compounds                     | 0.06                    | 42.9     | 0.03                 | 14.7    | 0.03                 | 14.7    | 345      |
| Lead (Bagasse)                                    | $2.5 \times 10^{-5}$ b  | 0.018 b  | $8.9 \times 10^{-7}$ | 0.0004  | $6.4 \times 10^{-5}$ | 0.031   | 0.454 f  |
| " (Wood Waste)                                    | $1.6 \times 10^{-4}$ c  | 0.114 c  |                      |         |                      |         |          |
| Mercury (Bagasse)                                 | $5.43 \times 10^{-6}$ b | 0.0039 b | $2.4 \times 10^{-6}$ | 0.00118 | $8.4 \times 10^{-6}$ | 0.0041  | 0.0300 f |
| " (Wood Waste)                                    | $4.0 \times 10^{-6}$ c  | 0.0029 c |                      |         |                      |         |          |
| Beryllium   | ---                     | ---      | $3.5 \times 10^{-7}$ | 0.00017 | $5.9 \times 10^{-6}$ | 0.0029  | 0.0052   |
| Fluorides   | ---                     | ---      | $6.3 \times 10^{-6}$ | 0.0003  | 0.024                | 11.8    | 21.2     |
| Sulfuric Acid Mist                                | 0.003                   | 2.15     | 0.0015               | 0.74    | 0.036                | 17.6    | 34.6     |

Table Notes:

a Compliance based on 30-day rolling average, per 40 CFR 60, Subpart Da.

[CO Limit: Although carbon monoxide (CO) emissions are not regulated by NSPS Subpart Da, compliance shall be demonstrated in a similar manner. The CO emissions from each boiler shall not exceed 0.35 pounds per MMBTU based on a 30-day (boiler operating days) rolling average. Compliance with this standard shall be demonstrated by continuous emissions monitoring data. The 30-day rolling average shall be determined by calculating the arithmetic average of all hourly emission rates for 30 successive boiler operating days. The 1-hour averages shall be expressed in lb/MMBTU of heat input and are calculated using at least two valid data points. Calculation of the 30-day rolling average shall consist of at least 18 hours in at least 22 out of 30 successive boiler operating days. If this minimum data requirement cannot be met with a continuous monitoring system, the permittee shall supplement emission data with other monitoring systems approved by the EPA Administrator or the reference methods and procedures as described in 40 CFR 60.47a.]

b Emission limit for bagasse. Subject to revision after testing pursuant to Specific Condition Nos. 24 and 25.

c Emission limit for wood waste. Subject to revision after testing pursuant to Specific Condition Nos. 24 and 25.

d The emission limit shall be prorated when more than one type of fuel is burned in a boiler.

e Limit heat input from No. 2 fuel to less than 24.9 of total heat input on a calendar quarter basis, coal to 69,720 tons during any 12-month period, and the combination of oil and coal to less than 24.9 of the total heat input on a calendar quarter basis.

f Compliance based on a 12-month rolling average for any fuel combination.

The permittee shall comply with the excess emissions rule contained in Rule 62-210.700, F.A.C. In addition, the permittee is allowed excess emissions during startup, and shutdown and malfunction in accordance with permit condition No. 21, provided such excess emissions do not exceed a duration of four hours, and such emissions in excess of two hours do not exceed six (6) times per year. Periods of startup, shutdown and malfunction shall be defined as:

a. *Startup* is the commencement of operation of a boiler which has shut down or ceased operation for a period of time sufficient to cause temperature, pressure, chemical or pollution control device imbalances, which may result in excess emissions. Periods of startup for each boiler shall end once steam generation reaches 150,000 pounds per hour.

b. *Shutdown* is the cessation of the operation of a boiler for any purpose after steam generation drops below 150,000 pounds per hour.

c. Malfunction is any unavoidable mechanical and/or electrical failure of air pollution control equipment or process equipment or of a process resulting in operation in an abnormal or unusual manner.

[Rule 62-210.200 (179), (258), (275), F.A.C. and Rule 62-4.070(3), F.A.C.]

SPECIFIC CONDITION NO. 21

- a. Within 60 calendar days after achieving the maximum capacity at which each unit will be operated, but no later than 180 operating days after initial startup, the permittee shall conduct emission compliance tests for all air pollutants listed in Specific Condition No. 20 (including visible emissions). Test shall be conducted during normal operations (i.e., within 10 percent of the heat input). The permittee shall furnish the Department a written report of the results of such performance tests within 45 days of completion of the tests. The performance tests will be conducted in accordance with the provisions of 40 CFR 60.46a.
- b. Compliance with emission limitations for each fuel stated in Specific Condition No. 20 above shall be demonstrated using EPA Methods, as contained in 40 CFR Part 60 (Standards of Performance for New Stationary Sources), continuous emissions monitoring data, or 40 CFR Part 61 (National Emission Standards for Hazardous Air Pollutants), or any other method as approved by the Department, in accordance with F.A.C. Rule 62-297.620. A test protocol shall be submitted for approval to the Bureau of Air Regulation at least 90 days prior to testing.

| <u>EPA Method*</u> | <u>For Determination of</u>  |
|--------------------|--|
| 1                  | Selection of sample site and velocity traverses.   |
| 2                  | Stack gas flow rate when converting concentrations to or from mass emission limits.  |
| 3 or 3A            | Gas analysis when needed for calculation of molecular weight or percent O <sub>2</sub> .   |
| 4                  | Moisture content when converting stack velocity to dry volumetric flow rate for use in converting concentrations in dry gases to or from mass emission limits.   |
| 5                  | Particulate matter concentration and mass emissions.   |
| 201 or 201A        | PM <sub>10</sub> emissions.  |
| 6, 6C, or 19       | Sulfur dioxide emissions from stationary sources.  |
| 7, or 7E           | Nitrogen oxide emissions from stationary sources.  |
| 8 (modified)       | Sulfuric acid mist. **   |
| 9                  | Visible emission determination of opacity.<br>- At least three one hour runs to be conducted simultaneously with particulate testing.<br>- At least one truck unloading into the mercury reactant storage silo (from start to finish). |
| 10                 | Carbon monoxide emissions from stationary sources.   |
| 12                 | Determination of inorganic lead emissions from stationary sources.   |
| 13A or 13B         | Fluoride emissions from stationary sources.  |
| 18 or 25           | Volatile organic compounds concentration.  |
| 101A               | Determination of particulate and gaseous mercury emissions.  |



| <u>EPA Method*</u>               | <u>For Determination of</u>                                   |
|----------------------------------|---|
| 104                              | Determination of beryllium emissions from stationary sources. |
| 108                              | Determination of particulate and gaseous arsenic emissions.   |
| EMTIC Test Method<br>CTM-012.WPF | Chromium and copper emissions.                                |

- \* Other approved EPA test methods may be substituted for the listed method unless the Department has adopted a specific test method for the air pollutant.
- \*\* Test for sulfuric acid mist only required when coal is burned at the facility .

c. Continuous emission monitoring data required by this permit shall be collected and recorded during all periods of operation including startup, shutdown, and malfunction, except for continuous monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments. Although recorded, emissions during periods of startup, shutdown and malfunction may be excluded from the averaging calculations required to determine compliance with the emissions standards, not to exceed four (4) hours during startup, four (4) hours during shutdown, nor two (2) hours during malfunction in a 24-hour period. Excess Emissions beyond these periods shall be recorded and included in the averaging calculations required to determine compliance with the emissions standards. The permittee shall submit to the regulating agencies a Quarterly Excess Emissions Report within 30 days of the end of each calendar quarter. The report shall identify the date, time, and description of each startup, shutdown, and malfunction resulting in excess emissions. It shall also identify any steps taken to mitigate emissions during any malfunction as well as any corrective actions taken.

[Air Permit PSD-FL-196; Rule 62-210.700, F.A.C.; 40 CFR 60.8; and 40 CFR 60.46a]

d. Excess emissions resulting from startup, shutdown or malfunction of a boiler shall be permitted for standards based on short-term averaging periods (shorter than 24-hour averages) as specified in this permit, providing:

a. The operators implement best operational practices to minimize emissions, and

b. Excess emissions do not exceed four (4) hours for startup, four (4) hours for shutdown, nor two (2) hours for malfunction in any 24-hour period (day).

Within one (1) working day of excess emissions due to a malfunction, the permittee shall notify the regulating agencies of the date, time, description, steps to taken to minimize emissions, and actions taken to correct the problem.

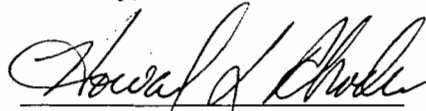
Excess emissions which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during startup, shutdown, or malfunction shall be prohibited. Excess emissions of standards based on long-term averaging periods (24-hour averages or longer) are not permitted because compliance is demonstrated by continuous monitor and provisions of this permit allow exclusion of monitoring data for periods of startup, shutdown, and malfunction.

[Rule 62-210.700, F.A.C.; Rule 62-4.070(3), F.A.C.; 40 CFR 60.8; and 40 CFR 60.46a]

Mr. James Meriwether  
June 22, 1999  
Page 5

This permit is issued pursuant to Chapter 403, Florida Statutes. A copy of this letter shall be filed with the referenced permit and certification and shall become part of the permit. Any party to this order has the right to seek judicial review of it under section 120.68 of the Florida Statutes, by filing a notice of appeal under rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department of Environmental Protection in the Office of General Counsel, Mail Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000, and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The notice must be filed within thirty (30) days after this order is filed with the clerk of the Department.

Sincerely,



Howard L. Rhodes, Director  
Division of Air Resources  
Management

**CERTIFICATE OF SERVICE**

The undersigned duly designated deputy agency clerk hereby certifies that this Notice of Final Permit was sent by certified mail (\*) and copies were mailed by U.S. Mail before the close of business on 6-24-99 to the person(s) listed:

Mr. James Meriwether, Okeelanta Power Limited Partnership\*  
Mr. James Stormer, Palm Beach County Health Department  
Mr. Phil Barbaccia, SD - DEP  
Mr. Gregg Worley, EPA  
Mr. John Bunyak, NPS

Clerk Stamp

**FILING AND ACKNOWLEDGMENT**

**FILED**, on this date, pursuant to §120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Kari Joben  
(Clerk)

6-24-99  
(Date)

Z 333 618 184

US Postal Service  
**Receipt for Certified Mail**

No Insurance Coverage Provided.

Do not use for International Mail (See reverse)

|   |    |
|---|----|
| Sent to   |    |
| James Meriwether  |    |
| Street & Number   |    |
| Okeelanta Cogen   |    |
| Post Office (State, & ZIP Code)                             |    |
| South 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  |    |
| 0990332-010 AC 6-24-99                                      |    |
| P50-FL-196F   |    |

PS Form 3800, April 1995

RETURN ADDRESS completed on the reverse side?

**SENDER:**

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- 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):

- Addressee's Address
- Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:  
James Meriwether  
Okeelanta Cogen Fac.  
P O BOX 9  
South Bay, FL  
33493

4a. Article Number  
Z 333 618 184

4b. Service Type

|   |   |
|---|---|
| <input type="checkbox"/> Registered                     | <input checked="" type="checkbox"/> Certified |
| <input type="checkbox"/> Express Mail                   | <input type="checkbox"/> Insured              |
| <input type="checkbox"/> Return Receipt for Merchandise | <input type="checkbox"/> COD                  |

7. Date of Delivery  
6-30-99

5. Received By: (Print Name)

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

6. Signature: (Addressee or Agent)  
X [Signature]

Thank you for using Return Receipt Service.

Florida Department of  
Environmental Protection

Memorandum

TO: Howard L. Rhodes

THRU: Clair Fancy <sup>for</sup> *JMK*  
Al Linero *JMK*

FROM: Jeff Koerner *JK*

DATE: June 21, 1999

SUBJECT: Okeelanta Power Limited Partnership  
Permit No. 099-0332-010-AC (PSD-FL-196F)  
Modification of CO Averaging Period and Excess Emissions Allowed

K

Attached for approval and signature is a PSD permit modification to increase the averaging period for CO emissions from 24-hours to 30-days, rolling. The modification also clarifies the allowable periods of excess emissions. The Public Notice requirements were met by publishing in the May 19, 1999 issue of the Palm Beach Post.

On June 17th, the applicant requested several changes to the draft language. As a result, minor revisions were made to the definitions of startup, shutdown, and malfunction.

I recommend your approval and signature.

Attachments

AL/jfk

RECEIVED

JUN 21 1999

BUREAU OF  
AIR REGULATION

OKEELANTA COGENERATION FACILITY  
P.O. Box 9  
South Bay, Florida 33493  
(561) 993-1010  
(561) 992-7744 (fax)

June 18, 1999

Florida Department of Environmental Protection  
Bureau of Air Regulation  
2600 Blair Stone Road  
Mail Station #5505  
Tallahassee, Florida 32399-2400

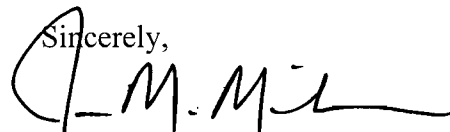
Attn: Jeff Koerner  
New Source Review Section

Re: Okeelanta Cogeneration Facility  
Draft Permit Modification No. 0990332-010-AC/PSD-FL-196F

Dear Mr. Koerner:

The Okeelanta Cogeneration Facility waives the right to have the above referenced permit modification issued or denied by the State of Florida Department of Environmental Protection within the ninety-day time period as proscribed by Florida regulations. The said waive is made freely and voluntarily by the Okeelanta Cogeneration Facility. This waiver shall expire on June 25, 1999. If you have any questions please contact me at (561) 993-1003.

Sincerely,



James M. Meriwether  
Environmental Manager

Cc: Rodney Williams

OKEELANTA COGENERATION FACILITY  
P.O. Box 9  
South Bay, Florida 33493  
(561) 993-1010  
(561) 992-7744 (fax)

(Jeff copied)  
**RECEIVED**

JUN 17 1999

BUREAU OF  
AIR REGULATION

June 8, 1999

Florida Department of Environmental Protection  
Bureau of Air Regulation  
2600 Blair Stone Road  
Mail Station #5505  
Tallahassee, Florida 32399-2400

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

Re: Okeelanta Cogeneration Facility  
Draft Permit Modification No. 0990332-010-AC/PSD-FL-196F

Dear Mr. Linero:

The Okeelanta Cogeneration Facility has reviewed the Draft air construction permit modification transmitted in the Department's letter dated May 7, 1999. At this time we wish to provide comments designed to revise the startup and shutdown language located in the Table Notes of Specific Condition #20. The purpose of our comments are to better define these two events. The revised definitions are as follows:

- a. Startup is the ~~commencement of operation of a boiler which has shut down or ceased operation for a period of time~~ period following a Shutdown when the boilers begin continuous firing of woodwaste, bagasse or coal, but not including warm-up periods when the auxiliary burner is utilized, sufficient to cause temperature, pressure, chemical or pollution control device imbalances, which may result in excess emissions. Periods of ~~startup~~ Startup for each boiler shall end once steam generation reaches 150,000 pounds per hour not to exceed four (4) hours in any 24 hour period (day) per occurrence.
- b. Shutdown is the cessation of the operation of a boiler for any purpose after steam generation drops below 150,000 pounds per hour. The process of ~~shutdown~~ Shutdown for each boiler shall not exceed four (4) hours in any 24 hour period (day) per occurrence.

In addition, Specific Condition #21 (c) and (d) would need modification to reflect the above revisions. These modifications are as follows:

c. Continuous emission monitoring data required by this permit shall be collected and recorded during all periods of operation including ~~startup Startup, shutdown Shutdown~~, and malfunction, except for continuous monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments. Although recorded, emissions during periods of ~~startup Startup, shutdown Shutdown~~ and malfunction shall be excluded from the averaging calculations required to determine compliance with the emissions standards, subject to the definitions of ~~startup Startup, shutdown Shutdown~~, and malfunction specified in this permit. For operation beyond four (4) hours of ~~startup Startup per occurrence~~, four (4) hours of ~~shutdown Shutdown per occurrence~~, or two (2) hours of malfunction in a 24-hour period, emissions data shall be recorded and included in the averaging calculations required to determine compliance with the emissions standards. The permittee shall submit to the regulating agencies a Quarterly Excess Emissions Report within 30 days of the end of each calendar quarter. The report shall identify the date, time, and description of each ~~startup Startup, shutdown Shutdown~~, and malfunction resulting in excess emissions. It shall also identify any steps taken to mitigate emissions during any malfunction as well as any corrective actions taken.

[Air Permit PSD-FL-196; Rule 62-210.700, F.A.C.; 40 CFR 60.8; and 40 CFR 60.46a]

d. Excess emissions resulting from ~~startup Startup, shutdown Shutdown~~ or malfunction of a boiler shall be permitted for standards based on short-term averaging periods (shorter than 24-hour averages) as specified in this permit, providing:

- a. The operators implement best operational practices to minimize emissions, and
- b. Excess emissions do not exceed four (4) hours for ~~startup Startup per occurrence~~, four (4) hours for ~~shutdown Shutdown per occurrence~~, nor two (2) hours for malfunction in any 24-hour period (day).

The Okeelanta Cogeneration Facility requests the Department to incorporate these revisions into the Final air construction permit modification. If you have any questions or need additional information please contact me at (561) 993-1003.

Sincerely,



James M. Meriwether  
Environmental Manager

cc: Ricardo Lima  
Rodney Williams  
Bill Tarr  
David Dee  
David Buff



FAXED 5/27/98

TO: JAMES MERIWETHER, OKEELANTA/Osceola

FROM: WILLARD HAWKS

**DRAFT**

June 5, 1998

**CERTIFIED MAIL - RETURN RECEIPT REQUESTED**

Mr. Rodney Williams, Plant Manager  
Okeelanta Power Limited Partnership  
Post Office Box 8  
South Bay, Florida 33493

Re: Permit Modification No. 0990332-009-AC  
PSD-FL-196

Dear Mr. Williams:

The Department has reviewed Mr. David Dee's February 27 letter requesting a modification to the referenced permit. The requested modification is to allow additional time for the simultaneous operation of Okeelanta's existing sugar mill boilers and your new cogeneration boilers. The effected facilities are located near South Bay, Palm Beach County, Florida. This request is acceptable, with conditions, and Specific Conditions Nos. 17, 18, and 26 of the referenced permit are modified as follows:

**MODIFIED SPECIFIC CONDITIONS FOR OKEELANTA POWER L. P. PERMIT**

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 until the interconnections (bagasse fuel and steam systems) between the cogeneration facility and the sugar mill are reliable, but no later than April 1, 2000. During the period from initial firing until April 1, ~~1998-2000~~ 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 periods of simultaneous operation. 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. After April 1, ~~1998 2000~~, the cogeneration boilers may be operated only when the existing sugar mill boilers are shutdown or in the process of immediately shutting down. During operation, the existing sugar mill 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, when the interconnected operations are reliable, but no later than January 1, 1999 April 1, 2001.
18. Boiler No. 16 (AC50-191876) may be retained as a standby boiler for the sugar refinery and sugar mill in accordance with its existing permit. Boiler No. 16 may be operated during startup, debugging, and testing of the cogeneration facility. After April 1, ~~1998 2000~~, this boiler may be operated only when one



Mr. Rodney Williams  
Page Two  
Okeelanta Power, LP

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.

26. Stack monitoring, fuel usage, ~~and~~ fuel analysis data, and the status of the interconnections between the sugar mill and the cogeneration facility shall be reported to the Department's South and Southeast District Offices and to the Palm Beach County Health Unit on a quarterly basis commencing with the start of commercial operation in accordance with 40 CFR, Part 60, Sections 60.7 and 60.49a, and in accordance with Section 17-297.500, F.A.C.

A copy of this letter shall be filed with the referenced permit and shall become part of the permit. This permit modification is issued pursuant to Chapter 403, Florida Statutes. Any party to this order (permit modification) has the right to seek judicial review of the permit pursuant to Section 120.68, F.S., by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Legal Office; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 (thirty) days from the date this Notice is filed with the Clerk of the Department.

Sincerely,

Howard L. Rhodes, Director  
Division of Air Resources  
Management

**DRAFT**

Enclosure: Landers & Parsons February 27, 1998 letter.

HLR/wh

**DRAFT**

June 5, 1998

**CERTIFIED MAIL - RETURN RECEIPT REQUESTED**

Mr. Carlos Rionda, General Manager  
Osceola Power Limited Partnership  
Post Office Box 606  
Pahokee, Florida 33476

Re: Permit Modification No. 0990331-007-AC  
PSD-FL-197

Dear Mr. Rionda:

The Department has reviewed Mr. David Dee's February 27 letter requesting a modification to the referenced permit. The requested modification is to allow additional time for the simultaneous operation of Osceola Farms' existing sugar mill boilers and your new cogeneration boilers. The effected facilities are located near Pahokee, Palm Beach County, Florida. This request is acceptable, with conditions, and Specific Conditions Nos. 17, and 25 of the referenced permit are modified as follows:

**MODIFIED SPECIFIC CONDITIONS FOR OSCEOLA POWER L. P. PERMIT**

17. ~~During the first three years of commercial cogeneration facility operation,~~ †The existing Boilers Nos. 2, 3, 4, 5, and 6 (Permit Nos. A0 50-269980, 203679, 165813, 203680, 165626, and 165814, respectively), may be retained for standby operation until the interconnections (bagasse fuel and steam systems) between the cogeneration facility and the sugar mill are reliable, but no later than April 1, 2000, provided their operating permits are valid.

During the period from initial firing through April 1, ~~1998~~ 2000 both 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 570,000 lb/hr steam, (24-hour average) is generated in the cogeneration boilers, steam in excess of 570,000 lb/hr (24-hour average) must be sent to the Osceola sugar mill, and the existing boilers' steam production reduced by an equivalent amount. After April 1, ~~1998~~ 2000, the cogeneration facility's boilers may be operated only when the sugar mill's boilers are shutdown or in the process of immediately shutting down. During operation, the existing sugar mill boilers must meet all requirements in the most recent construction and operation permits for the boilers. The existing sugar mill boilers shall be shutdown and rendered incapable of operation ~~within three (3) years of commercial startup of the cogeneration facility,~~ when the interconnected operations are reliable, no later than January 1, 1999-April 1, 2001.

Mr. Carlos Rionda  
Page Two  
Osceola Power, LP

25. Stack monitoring, fuel usage, and fuel analysis data, and the status of the interconnection between the sugar mill and the cogeneration facility shall be reported to the Department's South and Southeast District Offices and to the Palm Beach County Health Unit on a quarterly basis commencing with the start of commercial operation in accordance with 40 CFR, Part 60, Sections 60.7 and 60.49a, and in accordance with Section 17-297.500, F.A.C.

A copy of this letter shall be filed with the referenced permit and shall become part of the permit. This permit modification is issued pursuant to Chapter 403, Florida Statutes. Any party to this order (permit modification) has the right to seek judicial review of the permit pursuant to Section 120.68, F.S., by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Legal Office; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 (thirty) days from the date this Notice is filed with the Clerk of the Department.

Sincerely,

Howard L. Rhodes, Director  
Division of Air Resources  
Management

Enclosure: Landers & Parsons February 27, 1998 letter.

HLR/wh

**DRAFT**

OKEELANTA COGENERATION FACILITY  
P.O. Box 9  
South Bay, Florida 33493  
(561) 993-1010  
(561) 992-7744 (fax)

**RECEIVED**

MAY 28 1999

BUREAU OF  
AIR REGULATION

May 25, 1999

Department of Environmental Protection  
Twin Towers Office Building  
Bureau of Air Regulation  
New Source Review Section  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

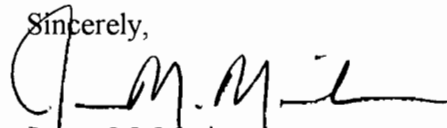
Attn: A. A. Linero, P.E.  
Administrator

Re: Okeelanta Cogeneration Facility  
Permit Modification No. 0990332-010-AC/PSD-FL-196F  
Proof of Publication

Dear Mr. Linero:

Please see the attached "Proof of Publication" for the Public Notice of Intent to Issue Air Construction Permit Modification. The Public Notice was published on May 19, 1999 in the Palm Beach Post. If you have any questions please contact me at (561) 993-1003.

Sincerely,



James M. Meriwether  
Environmental Manager

cc: Rodney Williams

cc: J. Reynolds, BAR  
SD  
Palm Bch Co

# THE PALM BEACH POST

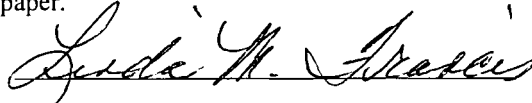
Published Daily and Sunday  
West Palm Beach, Palm Beach County, Florida

## PROOF OF PUBLICATION

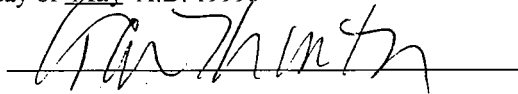
STATE OF FLORIDA  
COUNTY OF PALM BEACH

Before the undersigned authority personally appeared Linda M. Francis who on oath says that he/she is Classified Advertising Supervisor of The Palm Beach Post, a daily and Sunday newspaper published at West Palm Beach in Palm Beach County, Florida; that the attached copy of advertising, being Notice in the matter of Intent the --- Court, was published in said newspaper in the issues of May 19, 1999.

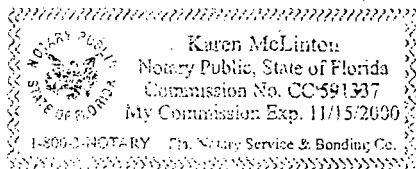
Affiant further says that the said The Post is a newspaper published at West Palm Beach, in said Palm Beach County, Florida, and that the said newspaper has heretofore been continuously published in said Palm Beach County, Florida, daily and Sunday and has been entered as second class mail matter at the post office in West Palm Beach, in said Palm Beach County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that he/she has neither paid nor promised any person, firm or corporation any discount rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.



Sworn to and subscribed before me this 19 day of May A.D. 1999.



Personally known XX or Produced Identification \_\_\_\_\_  
Type of Identification Produced \_\_\_\_\_



NO. 592450  
PUBLIC NOTICE OF INTENT  
TO ISSUE AIR CONSTRUCTION  
PERMIT MODIFICATION  
STATE OF FLORIDA  
DEPARTMENT  
OF ENVIRONMENTAL  
PROTECTION  
DRAFT Permit Modification  
No. 0990332-010-AC  
(PSD-FL-198F)

Okeelanta Power  
Limited Partnership  
Palm Beach County  
The Department of Environ-  
mental Protection (Depart-  
ment) gives notice of its intent  
to issue an air construction  
permit modification to Okeela-  
nta Power Limited Partne-  
rship for the cogeneration  
plant located approximately  
six miles south of South Bay in  
Palm Beach County. A Best  
Available Control Technology  
(BACT) determination was not  
required for this modification  
pursuant to Rule 62-212.400,  
F.A.C. and 40 CFR 52.21, Pre-  
vention of Significant Deterio-  
ration (PSD). The modification  
will not result in an increase in  
allowable emissions from the  
cogeneration facility, and will  
not cause a violation of any  
state or federal ambient air  
quality standards or incre-  
ments. The applicant's name  
and address are: Okeelanta  
Power Limited Partnership,  
P.O. Box 9, South Bay, FL  
33493.

The modification will allow av-  
eraging of carbon monoxide  
emissions over a rolling 30-  
day averaging period instead  
of the former 24-hour averag-  
ing period as a result of the  
uncontrollable moisture con-  
tent of the biomass fuel  
burned. The modification also  
defines process conditions for  
startup, shutdown and mal-  
function of the boilers and pe-  
riods during which excess  
emissions may occur.

The Department will issue the  
Final permit modification with  
the attached conditions unless  
a response received in accor-  
dance with the following pro-  
cedures results in a different  
decision or significant change  
of terms or conditions.

The Department will accept  
written comments and re-  
quests for public meetings  
concerning the proposed per-  
mit issuance action for a peri-  
od of 30 (thirty) days from the  
date of publication of this Pub-  
lic Notice of Intent to Issue Air  
Construction Modification.  
Written comments and re-  
quests for public meetings  
should be provided to the De-  
partment's Bureau of Air Regu-  
lation at 2600 Blair Stone  
Road, Mail Station #5505, Tal-  
lahassee, FL 32399-2400. Any  
written comments filed shall  
be made available for public  
inspection. If written com-  
ments received result in a sig-  
nificant change in the pro-  
posed agency action, the  
Department shall revise the  
proposed permit and require,  
if applicable, another Public  
Notice.

The Department will issue the  
permit modification with the  
attached conditions unless a  
timely petition for an adminis-  
trative hearing is filed pursu-  
ant to sections 120.569 and  
120.57 F.S., before the dead-  
line for filing a petition. The

procedures for petitioning for  
a hearing are set forth below.  
Mediation is not available in  
this proceeding.

A person whose substantial in-  
terests are affected by the  
proposed permitting decision  
may petition for an adminis-  
trative proceeding (hearing) un-  
der sections 120.569 and  
120.57 of the Florida Statutes.  
The petition must contain the  
information set forth below  
and must be filed (received) in  
the Office of General Counsel  
of the Department at 3900  
Commonwealth Boulevard,  
Mail Station #35, Tallahassee,  
Florida, 32399-3000. Petitions  
filed by the permit applicant  
or any of the parties listed be-  
low must be filed within four-  
teen days of receipt of this  
notice of intent. Petitions filed  
by any persons other than  
those entitled to written no-  
tice under section 120.60(3)  
of the Florida Statutes must  
be filed within fourteen days  
of publication of the public no-

receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts upon which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

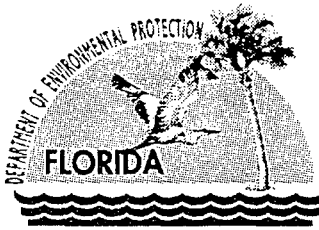
A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by rule 28-106.301.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

A complete project file is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Dept. of Environmental Protection  
Bureau of Air Regulation  
Suite 4, 111 S. Magnolia Drive  
Tallahassee, Florida, 32301  
Telephone: 850/488-0114  
Fax: 850/922-6979  
Division of Environmental Health and Engineering  
Palm Beach County Health Department  
901 Evernia Street  
West Palm Beach, Florida 33401  
Telephone: 561/355-3070  
Dept. of Environmental Protection  
South District Office  
Suite 364,  
2295 Victoria Avenue  
Fort Myers, Florida  
33901-3381  
Telephone: 941/332-6975  
Dept. of Environmental Protection  
Southeast District Office  
400 North Congress Avenue  
West Palm Beach, Florida 33401  
Telephone: 561/681-8600

The complete project file includes the application, Draft permit modification, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Administrator, New Source Review Section, or the Department's reviewing engineer for this project, John Reynolds, at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301; or call 850/488-0114, for additional information.  
PUB: The Palm Beach Post  
May 19, 1999



Jeb Bush  
Governor

# Department of Environmental Protection

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

David B. Struhs  
Secretary

May 7, 1999

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. James Meriwether  
Environmental Manager  
Okeelanta Power Limited Partnership  
Post Office Box 8  
South Bay, Florida 33493

Re: DEP File No. DRAFT Permit Modification No. 0990332-010-AC / PSD-FL-196F  
Okeelanta Cogeneration Facility, Palm Beach County

Dear Mr. Meriwether:

Enclosed is one copy of the Draft air construction permit modification for Okeelanta Power Limited Partnership's cogeneration plant located at located six miles south of South Bay in Palm Beach County, Florida. The Department's Intent to Issue Air Construction Permit Modification and the Public Notice of Intent to Issue Air Construction Permit Modification are also included.

The Public Notice of Intent to Issue Air Construction Permit Modification must be published one time only, as soon as possible, in the legal advertisement section of a newspaper of general circulation in the area affected, pursuant to the requirements Chapter 50, Florida Statutes. Proof of publication, i.e., newspaper affidavit, must be provided to the Department's Bureau of Air Regulation office within seven days of publication. Failure to publish the notice and provide proof of publication may result in the denial of the permit modification.

Please submit any written comments you wish to have considered concerning the Department's proposed action to A. A. Linero, P.E., Administrator, New Source Review Section at the above letterhead address. His phone number is 850/921-9523

Sincerely,

C. H. Fancy, P.E., Chief,  
Bureau of Air Regulation

CHF/jfk

Enclosures

In the Matter of an  
Application for Permit by:

Mr. James Meriwether  
Environmental Manager  
Okeelanta Power Limited Partnership  
Post Office Box 8  
South Bay, Florida 33493

DEP File No. 0990332-010-AC  
PSD-FL-196F  
Cogeneration Plant: CO Modification  
Palm Beach County

**INTENT TO ISSUE AIR CONSTRUCTION PERMIT MODIFICATION**

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit modification (copy of draft permit modification attached) for the proposed project, detailed in the application specified above, for the reasons stated below.

Okeelanta Power Limited Partnership operates a cogeneration plant located six miles south of South Bay in Palm Beach County, Florida. On December 14, 1998, Okeelanta Power Limited Partnership applied to the Department for a modification of their air pollution construction permit. The sufficient fee was received on February 2, 1999. After review of the requested changes, the Department agrees to modify the permit conditions in accordance with the Draft permit modification. Specifically, the request to revise the carbon monoxide emissions limiting standard averaging period from a 24-hour average to a 30-day rolling average is approved, as well as some clarifying language regarding excess emissions. However, the request to increase the numerical portion of the carbon monoxide emission limiting standard from 0.35 lb/mmBTU to 0.50 lb/mmBTU was not granted because the Department believes the change is not supported by the continuous monitoring data provided. In addition, other revisions to the permit conditions allow authorized periods of startup, shutdown, and malfunction to be excluded from the compliance-averaging period.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes (F.S.), and Florida Administrative Code (F.A.C.) Chapters 62-4, 62-210, and 62-212. The above actions are not exempt from permitting procedures. The Department has determined that an air construction permit modification is required to revise the requested permit conditions.

The Department intends to issue this air construction permit modification based on the belief that reasonable assurances have been provided to indicate that operation of these emission units will not adversely impact air quality, and the emission units will comply with all appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297, F.A.C.

Pursuant to Section 403.815, F.S., and Rule 62-110.106(7)(a)1., F.A.C., you (the applicant) are required to publish at your own expense the enclosed Public Notice of Intent to Issue Air Construction Permit Modification. The notice shall be published one time only in the legal advertisement section of a newspaper of general circulation in the area affected. Rule 62-110.106(7)(b), F.A.C., requires that the applicant cause the notice to be published as soon as possible after notification by the Department of its intended action. For the purpose of these rules, "publication in a newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. If you are uncertain that a newspaper meets these requirements, please contact the Department at the address or telephone number listed below. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400 (Telephone: 850/488-0114; Fax 850/ 922-6979). You must provide proof of publication within seven days of publication, pursuant to Rule 62-110.106(5), F.A.C. No permitting action for which published notice is required shall be granted until proof of publication of notice is made by furnishing a uniform affidavit in substantially the form prescribed in section 50.051, F.S. to the office of the Department issuing the permit modification. Failure to publish the notice and provide proof of publication may result in the denial of the permit modification pursuant to Rules 62-110.106(9) & (11), F.A.C.



The Department will issue the final permit modification with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments and requests for public meetings concerning the proposed permit modification issuance action for a period of 30 (thirty) days from the date of publication of Public Notice of Intent to Issue Air Permit Modification. Written comments and requests for public meetings should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit modification and require, if applicable, another Public Notice.

The Department will issue the permit modification with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons

whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

Mediation is not available in this proceeding.


In addition to the above, a person subject to regulation has a right to apply for a variance from or waiver of the requirements of particular rules, on certain conditions, under Section 120.542 F.S. The relief provided by this state statute applies only to state rules, not statutes, and not to any federal regulatory requirements. Applying for a variance or waiver does not substitute or extend the time for filing a petition for an administrative hearing or exercising any other right that a person may have in relation to the action proposed in this notice of intent.

The application for a variance or waiver is made by filing a petition with the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. The petition must specify the following information: (a) The name, address, and telephone number of the petitioner; (b) The name, address, and telephone number of the attorney or qualified representative of the petitioner, if any; (c) Each rule or portion of a rule from which a variance or waiver is requested; (d) The citation to the statute underlying (implemented by) the rule identified in (c) above; (e) The type of action requested; (f) The specific facts that would justify a variance or waiver for the petitioner; (g) The reason why the variance or waiver would serve the purposes of the underlying statute (implemented by the rule); and (h) A statement whether the variance or waiver is permanent or temporary and, if temporary, a statement of the dates showing the duration of the variance or waiver requested.

The Department will grant a variance or waiver when the petition demonstrates both that the application of the rule would create a substantial hardship or violate principles of fairness, as each of those terms is defined in Section 120.542(2) F.S., and that the purpose of the underlying statute will be or has been achieved by other means by the petitioner.

Persons subject to regulation pursuant to any federally delegated or approved air program should be aware that Florida is specifically not authorized to issue variances or waivers from any requirements of any such federally delegated or approved program. The requirements of the program remain fully enforceable by the Administrator of the EPA and by any person under the Clean Air Act unless and until the Administrator separately approves any variance or waiver in accordance with the procedures of the federal program.

Executed in Tallahassee, Florida.

  
C. H. Fancy, P.E., Chief  
Bureau of Air Regulation

**CERTIFICATE OF SERVICE**

The undersigned duly designated deputy agency clerk hereby certifies that this Intent to Issue Air Construction Permit Modification (including the Public Notice of Intent to Issue Air Construction Permit and the Draft Permit Modification) was sent by certified mail (\*) and copies were mailed by U.S. Mail before the close of business on 5-10-99 to the person(s) listed:

Mr. James Meriwether, Okeelanta Power Limited Partnership\*  
Mr. James Stormer, Palm Beach County Health Department  
Mr. Phil Barbaccia, SD – DEP  
Mr. Jeff Koerner, BAR - DEP  
Mr. Gregg Worley, EPA  
Mr. John Bunyak, NPS

Clerk Stamp

**FILING AND ACKNOWLEDGMENT FILED**, on this date, pursuant to §120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Kym J. Ober      5-10-99  
(Clerk)                      (Date)

Z 333 618 108

US Postal Service  
**Receipt for Certified Mail**

No Insurance Coverage Provided.

Do not use for International Mail (See reverse)

|   |         |
|---|---------|
| Sent to   |         |
| James Meriwether  |         |
| Street & Number   |         |
| Okeelanta Power   |         |
| Post Office, State, & ZIP Code                              |         |
| South 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  | 5-10-99 |
| 0990332-010-AC<br>P30-FL-196F                               |         |

PS Form 3800, April 1995

Is your RETURN ADDRESS completed on the reverse side?

**SENDER:**

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- 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):

- Addressee's Address
- Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

James Meriwether, E.M.  
Okeelanta Power Ltd  
PO Box 8  
South Bay, FL  
33493

4a. Article Number

Z 333 618 108

4b. Service Type

- Registered  Certified  
 Express Mail  Insured  
 Return Receipt for Merchandise  COD

7. Date of Delivery

5-13-99

5. Received By: (Print Name)

K. Yerkes

6. Signature: (Addressee or Agent)

K. Yerkes

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

Thank you for using Return Receipt Service.

**PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT MODIFICATION**

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DRAFT Permit Modification No. 0990332-010-AC (PSD-FL-196F)  
Okeelanta Power Limited Partnership  
Palm Beach County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit modification to Okeelanta Power Limited Partnership for the cogeneration plant located approximately six miles south of South Bay in Palm Beach County. A Best Available Control Technology (BACT) determination was not required for this modification pursuant to Rule 62-212.400, F.A.C. and 40 CFR 52.21, Prevention of Significant Deterioration (PSD). The modification will not result in an increase in allowable emissions from the cogeneration facility, and will not cause a violation of any state or federal ambient air quality standards or increments. The applicant's name and address are: Okeelanta Power Limited Partnership, P.O. Box 9, South Bay, FL 33493.

The modification will allow averaging of carbon monoxide emissions over a rolling 30-day averaging period instead of the former 24-hour averaging period as a result of the uncontrollable moisture content of the biomass fuel burned. The modification also defines process conditions for startup, shutdown and malfunction of the boilers and periods during which excess emissions may occur.

The Department will issue the Final permit modification with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments and requests for public meetings concerning the proposed permit issuance action for a period of 30 (thirty) days from the date of publication of this Public Notice of Intent to Issue Air Construction Modification. Written comments and requests for public meetings should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit modification with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below.

Mediation is not available in this proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

NOTICE TO BE PUBLISHED IN THE NEWSPAPER

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by rule 28-106.301

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

A complete project file is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Dept. of Environmental Protection  
Bureau of Air Regulation  
Suite 4, 111 S. Magnolia Drive  
Tallahassee, Florida, 32301  
Telephone: 850/488-0114  
Fax: 850/922-6979

Dept. of Environmental Protection  
South District Office  
Suite 364, 2295 Victoria Avenue  
Fort Myers, Florida 33901-3381  
Telephone: 941/332-6975

Division of Environmental Health  
and Engineering  
Palm Beach County Health Department  
901 Evernia Street  
West Palm Beach, Florida 33401  
Telephone: 561/355-3070

Dept. of Environmental Protection  
Southeast District Office  
400 North Congress Avenue  
West Palm Beach, Florida 33401  
Telephone: 561/681-6600

The complete project file includes the application, Draft permit modification, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Administrator, New Source Review Section, or the Department's reviewing engineer for this project, John Reynolds, at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301, or call 850/488-0114, for additional information.

June xx, 1999

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. James Meriwether  
 Environmental Manager  
 Okeelanta Cogeneration Facility  
 Post Office Box 9  
 South Bay, Florida 33493

RE:DEP File No. 0990332-010-AC (PSD-FL-196F)  
 Permit Modifications

Dear Mr. Meriwether:

This is in response to Golder Associates' letter dated December 14, 1998 and fee received February 2, 1999 requesting changes to the subject construction permit. The Department considered the requests and agrees to modify the permit conditions as indicated below. The request for revising the 0.35 lb CO/MMBtu limit from a 24-hour averaging time to a 30-day rolling average was approved. However, the requested increase to 0.5 lb CO/MMBtu was not granted based on our conclusion from the test data that the longer term average can be met at 0.35 lb/MMBtu. The requested modifications of provisions related to excess emissions and other changes are indicated by the underlined additions.

The permit is hereby modified as shown below. The excess fee paid will be refunded separately.

SPECIFIC CONDITION NO. 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:

| Pollutant                       | EMISSION LIMIT (per boiler) <sup>d</sup> |         |            |         |            |         | Total <sup>e</sup><br>Three<br>Boilers<br>(TPY) |
|---------------------------------|--|---------|------------|---------|------------|---------|---|
|                                 | Biomass                                  |         | No. 2 Oil  |         | Bit. Coal  |         |   |
|                                 | (lb/MMBtu)                               | (lb/hr) | (lb/MMBtu) | (lb/hr) | (lb/MMBtu) | (lb/hr) |   |
| Particulate (TSP)               | 0.03                                     | 21.5    | 0.03       | 14.7    | 0.03       | 14.7    | 172.5   |
| Particulate (PM <sub>10</sub> ) | 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                  |  |         |            |         |            |         |   |
| (Bagasse)                       | 0.02 a                                   |         |            |         | 1.2 a      |         | 1,154.3 f                                       |
| (Wood Waste)                    | 0.05a c                                  |         |            |         |            |         |   |
| 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<br>24 hour 30-day<br>rolling avg. | 0.35 a                  | 250.3 a  | 0.35 a               | 171.5 a | 0.35 a               | 171.5 a | 2,012.5  |
| Volatile Organic<br>Compounds                     | 0.06                    | 42.9     | 0.03                 | 14.7    | 0.03                 | 14.7    | 345      |
| Lead (Bagasse)                                    | $2.5 \times 10^{-5}$ b  | 0.018 b  | $8.9 \times 10^{-7}$ | 0.0004  | $6.4 \times 10^{-5}$ | 0.031   | 0.454 f  |
| " (Wood Waste)                                    | $1.6 \times 10^{-4}$ c  | 0.114 c  |                      |         |                      |         |          |
| Mercury (Bagasse)                                 | $5.43 \times 10^{-6}$ b | 0.0039 b | $2.4 \times 10^{-6}$ | 0.00118 | $8.4 \times 10^{-6}$ | 0.0041  | 0.0300 f |
| " (Wood Waste)                                    | $4.0 \times 10^{-6}$ c  | 0.0029 c |                      |         |                      |         |          |
| Beryllium   | ---                     | ---      | $3.5 \times 10^{-7}$ | 0.00017 | $5.9 \times 10^{-6}$ | 0.0029  | 0.0052   |
| Fluorides   | ---                     | ---      | $6.3 \times 10^{-6}$ | 0.0003  | 0.024                | 11.8    | 21.2     |
| Sulfuric Acid Mist                                | 0.003                   | 2.15     | 0.0015               | 0.74    | 0.036                | 17.6    | 34.6     |

Table Notes:

a Compliance based on 30-day rolling average, per 40 CFR 60, Subpart Da.

[CO Limit: Although carbon monoxide (CO) emissions are not regulated by NSPS Subpart Da, compliance shall be demonstrated in a similar manner. The CO emissions from each boiler shall not exceed 0.35 pounds per MMBTU based on a 30-day (boiler operating days) rolling average. Compliance with this standard shall be demonstrated by continuous emissions monitoring data. The 30-day rolling average shall be determined by calculating the arithmetic average of all hourly emission rates for 30 successive boiler operating days. The 1-hour averages shall be expressed in lb/MMBTU of heat input and are calculated using at least two valid data points. Calculation of the 30-day rolling average shall consist of at least 18 hours in at least 22 out of 30 successive boiler operating days. If this minimum data requirement cannot be met with a continuous monitoring system, the permittee shall supplement emission data with other monitoring systems approved by the EPA Administrator or the reference methods and procedures as described in 40 CFR 60.47a.]

b Emission limit for bagasse. Subject to revision after testing pursuant to Specific Condition Nos. 24 and 25.

c Emission limit for wood waste. Subject to revision after testing pursuant to Specific Condition Nos. 24 and 25.

d The emission limit shall be prorated when more than one type of fuel is burned in a boiler.

e Limit heat input from No. 2 fuel to less than 24.9 of total heat input on a calendar quarter basis, coal to 69,720 tons during any 12-month period, and the combination of oil and coal to less than 24.9 of the total heat input on a calendar quarter basis.

f Compliance based on a 12-month rolling average for any fuel combination.

The permittee shall comply with the excess emissions rule contained in Rule 62-296.210, F.A.C. In addition, the permittee is allowed excess emissions during startup and shutdown conditions, provided such excess emissions do not exceed a duration of four hours, and such emissions in excess of two hours do not exceed six (6) times per year. Periods of startup, shutdown and malfunction shall be defined as:

a. Startup is the commencement of operation of a boiler which has shut down or ceased operation for a period of time sufficient to cause temperature, pressure, chemical or pollution control device imbalances, which result in excess emissions. Periods of startup for each boiler shall end once steam generation reaches 150,000 pounds per hour not to exceed four (4) hours in any 24-hour period (day).

b. Shutdown is the cessation of the operation of a boiler for any purpose after steam generation drops below 150,000 pounds per hour. The process of shutdown for each boiler shall not exceed four (4) hours in any 24-hour period (day).



c. Malfunction is any unavoidable mechanical and/or electrical failure of air pollution control equipment or process equipment or of a process resulting in operation in an abnormal or unusual manner. Malfunctions shall be limited to two (2) hours in any 24-hour period (day). Within one (1) working day of a malfunction, the permittee shall notify the regulating agencies of the date, time, description, steps to taken to minimize emissions, and corrective actions taken.

[Rule 62-210.200 (179), (258), (275), F.A.C. and Rule 62-4.070(3), F.A.C.]

SPECIFIC CONDITION NO. 21

- a. Within 60 calendar days after achieving the maximum capacity at which each unit will be operated, but no later than 180 operating days after initial startup, the permittee shall conduct emission compliance tests for all air pollutants listed in Specific Condition No. 20 (including visible emissions). Test shall be conducted during normal operations (i.e., within 10 percent of the heat input). The permittee shall furnish the Department a written report of the results of such performance tests within 45 days of completion of the tests. The performance tests will be conducted in accordance with the provisions of 40 CFR 60.46a.
- b. Compliance with emission limitations for each fuel stated in Specific Condition No. 20 above shall be demonstrated using EPA Methods, as contained in 40 CFR Part 60 (Standards of Performance for New Stationary Sources), continuous emissions monitoring data, or 40 CFR Part 61 (National Emission Standards for Hazardous Air Pollutants), or any other method as approved by the Department, in accordance with F.A.C. Rule 62-297.620. A test protocol shall be submitted for approval to the Bureau of Air Regulation at least 90 days prior to testing.

| <u>EPA Method*</u> | <u>For Determination of</u>  |
|--------------------|--|
| 1                  | Selection of sample site and velocity traverses.   |
| 2                  | Stack gas flow rate when converting concentrations to or from mass emission limits.  |
| 3 or 3A            | Gas analysis when needed for calculation of molecular weight or percent O <sub>2</sub> .   |
| 4                  | Moisture content when converting stack velocity to dry volumetric flow rate for use in converting concentrations in dry gases to or from mass emission limits.   |
| 5                  | Particulate matter concentration and mass emissions.   |
| 201 or 201A        | PM <sub>10</sub> emissions.  |
| 6, 6C, or 19       | Sulfur dioxide emissions from stationary sources.  |
| 7, or 7E           | Nitrogen oxide emissions from stationary sources.  |
| 8 (modified)       | Sulfuric acid mist. **   |
| 9                  | Visible emission determination of opacity.<br>- At least three one hour runs to be conducted simultaneously with particulate testing.<br>- At least one truck unloading into the mercury reactant storage silo (from start to finish). |
| 10                 | Carbon monoxide emissions from stationary sources.   |
| 12                 | Determination of inorganic lead emissions from stationary sources.   |
| 13A or 13B         | Fluoride emissions from stationary sources.  |
| 18 or 25           | Volatile organic compounds concentration.  |
| 101A               | Determination of particulate and gaseous mercury emissions.  |

| <u>EPA Method*</u>               | <u>For Determination of</u>                                   |
|----------------------------------|---|
| 104                              | Determination of beryllium emissions from stationary sources. |
| 108                              | Determination of particulate and gaseous arsenic emissions.   |
| EMTIC Test Method<br>CTM-012.WPF | Chromium and copper emissions.                                |

\* Other approved EPA test methods may be substituted for the listed method unless the Department has adopted a specific test method for the air pollutant.

\*\* Test for sulfuric acid mist only required when coal is burned at the facility .

c. Continuous emission monitoring data required by this permit shall be collected and recorded during all periods of operation including startup, shutdown, and malfunction, except for continuous monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments. Although recorded, emissions during periods of startup, shutdown and malfunction shall be excluded from the averaging calculations required to determine compliance with the emissions standards, subject to the definitions of startup, shutdown, and malfunction specified in this permit. For operation beyond four (4) hours of startup, four (4) hours of shutdown, or two (2) hours of malfunction in a 24-hour period, emissions data shall be recorded and included in the averaging calculations required to determine compliance with the emissions standards. The permittee shall submit to the regulating agencies a Quarterly Excess Emissions Report within 30 days of the end of each calendar quarter. The report shall identify the date, time, and description of each startup, shutdown, and malfunction resulting in excess emissions. It shall also identify any steps taken to mitigate emissions during any malfunction as well as any corrective actions taken.

[Air Permit PSD-FL-196; Rule 62-210.700, F.A.C.; 40 CFR 60.8; and 40 CFR 60.46a]

d. Excess emissions resulting from startup, shutdown or malfunction of a boiler shall be permitted for standards based on short-term averaging periods (shorter than 24-hour averages) as specified in this permit, providing:

a. The operators implement best operational practices to minimize emissions, and

b. Excess emissions do not exceed four (4) hours for startup, four (4) hours for shutdown, nor two (2) hours for malfunction in any 24-hour period (day).

Excess emissions which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during startup, shutdown, or malfunction shall be prohibited. Excess emissions of standards based on long-term averaging periods (24-hour averages or longer) are not permitted because compliance is demonstrated by continuous monitor and provisions of this permit allow exclusion of monitoring data for periods of startup, shutdown, and malfunction.

[Rule 62-210.700, F.A.C.; Rule 62-4.070(3), F.A.C.; 40 CFR 60.8; and 40 CFR 60.46a]

*Handwritten: 1/2 \**  
Any party to this order has the right to seek judicial review of it under section 120.68 of the Florida Statutes, by filing a notice of appeal under rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department of Environmental Protection in the Office of General Counsel, Mail Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000, and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The notice must be filed within thirty days after this order is filed with the clerk of the Department.

Mr. James Meriwether  
June xx, 1999  
Page 5

**DRAFT**

\* This permit is issued pursuant to Chapter 403, Florida Statutes. A copy of this letter shall be filed with the referenced permit and certification and shall become part of the permit.

Sincerely,

---

Howard L. Rhodes, Director  
Division of Air Resources  
Management

*Cherley*

*copies*

# INTEROFFICE MEMORANDUM

**Date:** 20-Apr-1999 07:32pm

**From:** Jeff\_Koerner

Jeff\_Koerner@dcf.state.fl.us@PMDf@EPIC66

**Dept:**

**Tel No:**

**To:** reynolds\_j ( reynolds\_j@A1@DER )  
**CC:** linero\_a ( linero\_a@A1@DER )

**Subject:** Okeelanta: Foward of AJ's Memo on Test Failures

John,

Last I heard, David Buff agreed to waive the time clock requirements as long as Palm Beach County agreed not to take enforcement action due to the delay - which they did. AJ Satyal, PBC's Compliance Supervisor, just sent me the attached memo regarding test failures for all three of the cogeneration boilers at Okeelanta. I thought I'd pass it along, just for your information. Please call me if you want to discuss this project.

Take care.

Jeff

**Preliminary Review:**  
**Okeelanta Cogeneration Facility's Compliance Test Report**

The Palm Beach County Health Department received copies of compliance test report from the Okeelanta Cogeneration Facility on April 14, 1999. Compliance test was performed for PM, PM10, SO2, NOX, CO, VOC, Opacity, Fluoride, Arsenic, Beryllium, Chromium, Copper, Lead and Mercury on all three boilers.

Compliance test was conducted by the Air Consulting Engineering, Inc., from January 22-February 5, 1999 for Boiler A, December 31, 1998-January 21, 1999 for Boiler B, and December 29-30, 1998 and January 6-11, 1999 for Boiler C.

Preliminary review indicates that the following boilers are failing the emission standard for the pollutants listed on the table:

**Boiler A.**

|    | Bagasse<br>lbs/mmbtu | Bagasse<br>lbs/hr | Wood<br>lbs/mmbtu | Wood<br>lbs/hr | Allowable<br>lbs/mmbtu | Allowable<br>lbs/hr |
|----|----------------------|-------------------|-------------------|----------------|------------------------|---------------------|
| PM | 0.27                 | 205.1             | 0.14              | 95.2           | 0.03                   | 21.5                |
|    |                      |                   |                   |                |                        |                     |
|    |                      |                   |                   |                |                        |                     |

**Boiler B.**

|    | Bagasse<br>lbs/mmbtu | Bagasse<br>lbs/hr | Wood<br>lbs/mmbtu | Wood<br>lbs/hr | Allowable<br>lbs/mmbtu | Allowable<br>lbs/hr |
|----|----------------------|-------------------|-------------------|----------------|------------------------|---------------------|
| PM | 0.12                 | 98.7              | 0.08              | 56.0           | 0.03                   | 21.5                |
|    |                      |                   |                   |                |                        |                     |
|    |                      |                   |                   |                |                        |                     |

**Boiler C.**

|      | Bagasse<br>lbs/mmbtu | Bagasse<br>lbs/hr | Wood<br>lbs/mmbtu | Wood<br>lbs/hr | Allowable<br>lbs/mmbtu | Allowable<br>lbs/hr |
|------|----------------------|-------------------|-------------------|----------------|------------------------|---------------------|
| PM   | 0.20                 | 170.0             | 0.43              | 296.4          | 0.03                   | 21.5                |
| Lead |                      |                   | 4.0E-04           | .276           | 1.6E-04                | 0.114               |
| PM10 |                      |                   | 0.05              | 39.0           | 0.03                   | 21.5                |

Final review of the report will be available upon completion.

RFC-822-headers:

Received: from notesmta.dcf.state.fl.us ([204.194.38.7])

by EPIC66.DEP.STATE.FL.US (PMDF V5.1-4 #7204)

with SMTP id <01JA9N86A11S000OET@EPIC66.DEP.STATE.FL.US>; Tue,  
20 Apr 1999 19:32:24 EDT

Received: by notesmta.dcf.state.fl.us(Lotus SMTP MTA v1.2 (600.1 3-26-1998))

id 85256759.0081C82A ; Tue, 20 Apr 1999 19:37:33 -0400

Content-disposition: inline

X-Lotus-FromDomain: INTERNET-MAIL

# Golder Associates Fax

To: Joe Khan

Fax Number: 850-922-6979

Company: FDEP

Date: April 14, 1999

From: David Buff

e-mail: @golder.com

Our ref: 983-7564-0200

Voice Mail:

RE:

Total pages (including cover): 2

Hard copy to follow

---

## MESSAGE

---



6241 NW 23rd St., Suite 500  
Gainesville, FL 32653  
U.S.A.  
Telephone: (352) 336-5600  
Fax: (352) 336-6603

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STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

WAIVER OF 90 DAY TIME LIMIT FOR ISSUANCE OF PERMIT  
UNDER SECTIONS 120.60(2) and 403.0876, FLORIDA STATUTES

Applicant: **Okeclanta Power, L.P.**

DEP File No.: **Permit No. 0990332-006-AC (PSD-FL-196)**

The undersigned has read Sections 120.60(2) and 403.0876, Florida Statutes (F.S.), and fully understands the applicant's rights under those sections.

With regard to the above referenced permit application, the applicant hereby, with full knowledge and understanding of its rights under Sections 120.60(2) and 403.0876, F.S., waives the right under those statutes to have the application for a permit issued or denied by the State of Florida Department of Environmental Protection within the ninety day time period proscribed in those sections. Said waiver is made freely and voluntarily by the applicant, is in its self-interest, and is made without any pressure or coercion by anyone employed by the State of Florida Department of Environmental Protection.

This waiver shall expire on **May 10, 1999.**

The undersigned is authorized to make this waiver on behalf of the applicant.

David A. Buff 04/14/99  
Signature/Date

Golder Associates Inc.  
David A. Buff  
Principal Engineer  
Name/Title (please print)

cc: **James Meriwether**



**FACSIMILE TRANSMITTAL COVER SHEET**

**DATE:** April 8, 1999  
**FROM:** Jeff Koerner, BAR - New Source Review Section (PBC)  
Fax: 561-355-2442  
SunCom: 273-3136, ext. 1142  
**TO:** John Reynolds, BAR - New Source Review Section  
Fax: 850-922-6979  
**RE:** Okeelanta CO / Excess Emissions Modification

---

John,

I am attaching my review and comments on this project. I hope they will be useful in preparing a technical evaluation or perhaps permit conditions. In short, my recommendation is to:

- Revise the averaging period for the CO standard from a 24-hour basis to a rolling 30-day basis.
- Leave the CO numerical limit at 0.35 lb/mmBTU.
- Specifically define startup, shutdown, and malfunction for this facility, and specify that monitoring data collected during these periods should be excluded from the compliance average in accordance with the NSPS.
- Only allow "excess emissions" for short-term standards defined as shorter than 24-hour averages. This is because the long-term averages (24-hour or greater) are allowed to exclude data from the compliance average for startup, shutdown, and malfunction anyway.

I believe that this would meet the applicant's request while maintaining the integrity of the original permit conditions. Of course, this is just my opinion based on my 8 days of PSD permitting experience. Please call me if you have any questions or need me to proof anything.

Thanks!

Jeff

P.S. I also sent an email of this so you could have the text.  
JK



Jeb Bush  
Governor

# Department of Environmental Protection

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

David B. Struhs  
Secretary

## INTEROFFICE MEMORANDUM

Date: April 7, 1999

To: Clair Fancy, PE, Chief  
Bureau of Air Regulation - DEP

From: Jeffery Koerner, P.E.  
New Source Review Section, BAR-DEP

Subject: **Okeelanta Power Limited Partnership (OkPLP) Cogeneration Facility  
Request to Revise CO Standards and Define Excess Emissions  
Project No. 099-0332-010-AC / Original PSD Permit No. PSD-FL-196 F**

Just before Al Linero went on vacation, he asked me to work with John Reynolds on this project because it was "in my neighborhood". He also asked me to act as the reviewing P.E. for this project because I would be working with John. However, I feel very uncomfortable with doing this, as I was brought in very late and really didn't have supervision over the project. Also, I am at a disadvantage in that I'm not quite set up for all of the DEP permitting formats just yet. John and I have discussed this, and he has agreed to consider my comments, complete the necessary paperwork and submit to you for your approval and certification, if necessary. John believes our approach may qualify as a "letter amendment" which would not require a Public Notice. This has been done previously for this facility's PSD permit and may require refunding a portion of the processing fee already collected. In a brief discussion with Joe Kahn (acting supervisor), he indicated that, although perhaps this action would be a non-PSD modification, he believes it would require a Public Notice.

I have attached my comments and recommendations on this project for your review. These may be useful in preparing a technical evaluation and revised permit conditions. Please let me know if this is satisfactory.

cc: John Reynolds, Project Engineer  
Al Linero, P.E., New Source Review Supervisor  
Joe Kahn, P.E. Acting New Source Review Supervisor

## 1. APPLICATION INFORMATION

Okeelanta Power Limited Partnership (OkPLP) operates a 74.9 MW cogeneration facility located 6 miles south of South Bay, off U.S. Highway 27 in Palm Beach County, Florida. The cogeneration plant consists of three identical boilers with associated process and control equipment. On December 15, 1998, Golder and Associates Inc. submitted a request to modify the current PSD permit with respect to the CO limit and excess emissions. The application became complete on February 2, 1999. **I believe Day No. 74 is April 17, 1999 (Saturday).**

## 2. MODIFICATION REQUEST

The applicant requests modification of permit PSD-FL-196 for the following two items.

- 2.1 **CO Limit:** Revise current CO emissions limiting standard from 0.35 lb/mmBTU based on a 24-hour average to 0.50 lb/mmBTU based on a 30-day rolling average.

**Basis for Request:** Additional operating and continuous monitoring data for CO emissions indicate problems complying with the current standard. Problems complying with the current CO standard are due to "... the uncontrollable moisture content of the wood fired ...". The numerical increase of the standard is needed to provide a "... greater margin of safety ...".

- 2.2 **Excess Emissions:** Revise the permitted periods of "excess emissions" such that excess emissions during startup, shutdown, off-line and malfunction shall be excluded from averaging calculations and from determinations of compliance with the emissions limits of the permit. The applicant defines these various periods of excess emissions as:

**Startup:** Between 4000 and 150,000 lb/hr of steam flow, or six hours, whichever occurs first.

**Shutdown:** Between 150,000 and 4000 lb/hr of steam flow, or six hours, whichever occurs first.

**Off-Line:** Operating at less than 4000 lb/hr of steam flow

**On-Line:** Operating above 150,000 lb/hr of steam flow

**Malfunction:** The duration of malfunctions shall not exceed three hours per occurrence.

**Basis for Request:** Additional operating and continuous monitoring data for CO emissions indicate problems complying with several of the emissions limiting standards especially during periods of startup and shutdown as well as numerous incidents of malfunctions. 150,000 lb/hr of steam is approximately 33% of capacity.

## 3. RULE APPLICABILITY

- 3.1 **CO Limit:** As requested, increasing the CO limit to 0.5 lb/mmBTU would result in an increase of more than 800 tons per year of CO. The applicant states that Rule 62-212.400(2)(g)5., F.A.C. (Relaxations of Restrictions on Pollutant Emitting Capacity), provides relief from a PSD permitting for this request because the net emissions of the cogeneration plant will not exceed the old baseline emissions of the sugar mill. However, this facility has been in operation for several years and has reestablished baseline emissions. In addition, the old sugar mill boilers were never retired and are now permitted to operate through April 1, 2001. In my opinion, increasing the CO emissions above the significant emissions rate would now require a BACT determination complete with modeling analysis. I believe Rule 62-212.400(2)(g)5., F.A.C. was intended to prevent the "backsliding" of permitted emissions standards. This is the state's version of the federal source obligation requirements in 40 CFR 52.21.

- 3.2 **Excess Emissions:** Because the boilers are subject to BACT and NSPS emission limiting standards, permitting excess emissions in advance would likely require the approval of the EPA and perhaps a new Public Notice.

## 4. OTHER INFORMATION

- 4.1 **Inspections/Comments from Local Air Program:** I have had several conversations with Ajaya Satyal, the air compliance supervisor for the Palm Beach County Health Department (PBCHD), regarding the current operations of this facility. Emissions compliance stack tests were recently performed for all boilers. Although the final reports have not yet been submitted, according to the testing consultant, the preliminary results indicate

some of the boilers will fail tests for more than one pollutant. Also, Mr. Satyal performed an inspection of the electrostatic precipitator during the summer of 1997. He noted that several of the large precipitator plates were warped and corroded which was affecting the particulate removal performance. Plant personnel indicated that a complete overhaul of this equipment was scheduled to bring the unit back up to design specifications. However, this maintenance and repair has yet to be performed. In addition, the plant seemed to be experiencing an inordinate amount of shutdowns for a power generating facility. Mr. Satyal expressed his concern that the increasing number of excess emissions incidents for opacity, carbon monoxide, and perhaps particulate matter may be the result of a gradual degradation of the process and control equipment.

- 4.2 Quarterly Excess Emissions Report: Mr. Satyal also sent me a letter concerning the most recent quarterly excess emissions report (January, February, and March of 1999) indicates several excess emissions incidents for the quarter. However, many of these incidents appear to be during periods of startup, shutdown, and malfunction. Because of the higher-than-expected CO levels, the plant began developing a "boiler control strategy" to lower the CO emissions. Here is an excerpt from the quarterly emissions report:

"In summary, CO was reduced significantly by changing the boiler control strategy, increasing the Overfire Air System static air pressure and increasing the ratio of Overfire Air to Undergrate Air. The primary benefit was to increase furnace penetration by the Overfire Air and significantly improve combustion air mixing in the furnace. These improvements were limited however by the physical dimensions of the overfire air ports and corner registers, and required utilization of all fan horsepower available. The information gained has permitted us to determine the next step to take toward continued improvement while burning wood as well as bagasse. The initial changes will include restricting the opening size of the current rear wall nozzle, improving damper control, and improving the tangential windbox registers."

## 5. EVALUATION AND RECOMMENDATIONS

- 5.1 CO Limit: Consider the following arguments:

- The monitoring data submitted indicates the following:

| 30-day Rolling Average<br>lb/mmBTU | Boiler A | Boiler B | Boiler C |
|------------------------------------|----------|----------|----------|
| Average                            | 0.244    | 0.284    | 0.248    |
| Maximum                            | 0.329    | 0.346    | 0.304    |

This shows that even if the numerical limit is not increased, the maximum value for each boiler never exceeded the current numerical limit of 0.35 lb/mmBTU for a 30-day rolling average.

- Previous permitting determinations indicated that the continuous monitoring of CO would demonstrate good over all combustion efficiency of the boilers which will be lost with such a large averaging period. However, the CO limit was not a BACT limit. As the applicant pointed out, a recent BACT determination for the Wheelabrator Ridge Energy Facility (burning biomass) allowed a revision of their BACT limit to a 30-day rolling average (0.32 lb/mmBTU) due to inherent problems with the high moisture of the fuel.
- There has been little effort to develop a conditioned, dry boiler fuel that would provide a more steady state operation.
- The Okeelanta cogeneration plant was built about the same time as the Wheelabrator Ridge Energy Facility and a similar emissions levels should be expected.
- In 1997, the Department revised the original CO limit from 0.35 lb/mmBTU based on an 8-hour average to 0.35 lb/mmBTU based on a 24-hour average. At that time the plant indicated that it would be able to comply with the 24-hour standard based on available monitoring data. The applicant has provided no details as to why the plant can no longer meet a 24-hour standard.
- The supporting information submitted for this request only includes monitoring data since the plant was restarted on February 27, 1998. This data appears to include periods of excess emissions during startup, shutdown, and malfunction. Their second request would exclude these periods, lowering this data.

- High moisture content of the biomass fuels may lead to higher (and fluctuating) CO emissions. However, this was not an *unknown* factor prior to constructing these units given that bagasse generally has a moisture content of more than 50%. Also, the bagasse and wood waste fuels are stored in open, uncovered stockpiles in a county known for having a “wet” climate.
- Raising the averaging period from a 24-hour average to a 30-day rolling average would not result in an increase in annual CO emissions.

**Recommendation:** Based on the information available, I believe there is sufficient justification to revise the CO standard from a 24-hour to a 30-day rolling average. However, I do not believe there is sufficient justification to increase the numerical portion of the CO limit and doing so could be interpreted as a significant emissions increase triggering a full PSD review for CO and a corresponding ambient air modeling analysis. I recommend the revised permit condition in Attachment A. Because this may be viewed as a relaxation of an emissions limiting standard, this revision *may* require the approval of the EPA *and perhaps* a new Public Notice.

5.2 **Excess Emissions:** Consider the following arguments:

- The original permit allowed excess emissions in accordance with Rule 62-210.700, F.A.C. or up to 2 hours in any 24-hour period if due to startup, shutdown, or malfunction. In addition, the permit allowed up to 4 hours of excess emissions resulting from startup not to exceed 6 times per year.
- According to the Quarterly Excess Emission Report (1st quarter, 1999), the plant indicates that CO emissions may be reduced significantly by implementing their boiler control strategy.
- NSPS 40 CFR 60.8 states, “... Operations during periods of startup, shutdown, and malfunction shall not constitute representative conditions for the purpose of a performance test *nor shall emissions in excess of the level of the applicable emission limit during periods of startup, shutdown, and malfunction be considered a violation of the applicable emission limit unless otherwise specified in the applicable standard.*”
- These boilers are subject to NSPS Subpart Da. The applicant cites NSPS rule 40 CFR 60.46a(c) as a basis for allowing periods of excess emissions. Summarizing, this rule states that PM and NO<sub>x</sub> standards apply at all times except during periods of startup, shutdown, or malfunction. This regulation goes on to state in paragraph (g) that compliance is determined by calculating the arithmetic average of all hourly emission rates for NO<sub>x</sub> for the 30 successive boiler operating days, except for data obtained during startup, shutdown, malfunction. This appears to be a reasonable way to handle CO emissions. See Attachment B for rule excerpts.
- The applicant also cites NSPS rule 40 CFR 60.47a(e) as a basis to exclude data collected during continuous monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments, but to record data during all periods of operation including periods of startup, shutdown, malfunction. This regulation goes on in paragraphs (f), (g), and (h) to provide specific details on the method of calculating the 30-day rolling average. See Attachment B for rule excerpts.
- Recent Department permits concerning BACT emissions limits for combustion turbines allow excess emissions for up to two hours in any 24-hour period and up to four hours for some modes of startup.
- The applicant requests to define startup as beginning when more than 4000 lb/hour of steam is generated and shutdown as ending when less than 4000 lb/hour of steam is generated. However, the applicant also requests to exclude periods when “off-line” without limiting the duration. This almost suggests an “idling mode” with no compliance requirements.

**Recommendation:** The NSPS regulations allow data collected during periods of startup, shutdown, and malfunction to be excluded from the determination of compliance with an emissions standard based on continuous monitoring data *regardless of whether or not in excess of a permit standard*. In my opinion, clearly defining periods of startup, shutdown, and malfunction and specifying that this data is excluded from averaging for compliance purposes would mitigate many of the applicant’s concerns regarding “excess emissions”. I would only allow excess emissions for short-term averaging periods of less than 24-hours. Allowing excess emissions for long-term averages of 24-hours or longer is not necessary because compliance is demonstrated by monitor and monitoring data for startup, shutdown, and malfunction may be excluded. I recommend the revised permit

conditions included in Attachment A. However, because the boilers are subject to BACT and NSPS emission limiting standards these changes *may* require the approval of the EPA *and perhaps* a new Public Notice.

**ATTACHMENT A**

{Revise in existing Emissions Table and include the following conditions as notes.}

1. **CO Limit:** The emissions of carbon monoxide from each boiler shall not exceed 0.35 pounds per mmBTU based on a 30-day (boiler operating days) rolling average. Compliance with this standard shall be demonstrated by continuous emissions monitoring data. The 30-day rolling average shall be determined by calculating the arithmetic average of all hourly emission rates for 30 successive boiler operating days. The 1-hour averages shall be expressed in lb/mmBTU of heat input and are calculated using at least two valid data points. Calculation of the 30-day rolling average shall consist of at least 18 hours in at least 22 out of 30 successive boiler operating days. If this minimum data requirement cannot be met with a continuous monitoring system, the permittee shall supplement emission data with other monitoring systems approved by the EPA Administrator or the reference methods and procedures as described in 40 CFR 60.47a.

**[Air Permit PSD-FL-196; 40 CFR 60.46a; and 40 CFR 60.47a]**

2. **Startups, Shutdowns, and Malfunctions:** Periods of startup, shutdown and malfunction shall be defined as:
  - a. *Startup* is the commencement of operation of a boiler which has shut down or ceased operation for a period of time sufficient to cause temperature, pressure, chemical or pollution control device imbalances, which result in excess emissions. Periods of startup for each boiler shall end once steam generation reaches 150,000 pounds per hour not to exceed four (4) hours in any 24-hour period (day).  
**[Rule 62-210.200(276), F.A.C. and Rule 62-4.070(3), F.A.C.]**
  - b. *Shutdown* is the cessation of the operation of a boiler for any purpose once steam generation drops below 150,000 pounds per hour. The process of shutdown for each boiler shall not exceed four (4) hours in any 24-hour period (day).  
**[Rule 62-210.200(259), F.A.C. and Rule 62-4.070(3), F.A.C.]**
  - c. *Malfunction* is any unavoidable mechanical and/or electrical failure of air pollution control equipment or process equipment or of a process resulting in operation in an abnormal or unusual manner. Malfunctions shall be limited to two (2) hours in any 24-hour period (day). Within one (1) working day of a malfunction, the permittee shall notify the regulating agencies of the date, time, description, steps to taken to minimize emissions, and corrective actions taken.  
**[Rule 62-210.200(179), F.A.C. and Rule 62-4.070(3), F.A.C.]**

3. **Continuous Monitoring Data:** Continuous emission monitoring data required by this permit shall be collected and recorded during all periods of operation including startup, shutdown, and malfunction, except for continuous monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments. Although recorded, emissions during periods of startup, shutdown and malfunction shall be *excluded* from the averaging calculations required to determine compliance with the emissions standards, subject to the definitions of startup, shutdown, and malfunction specified in this permit. For operation beyond four (4) hours of startup, four (4) hours of shutdown, or two (2) hours of malfunction in a 24-hour period, emissions data shall be recorded and included in the averaging calculations required to determine compliance with the emissions standards. The permittee shall submit to the regulating agencies a Quarterly Excess Emissions Report within 30 days of the end of each calendar quarter. The report shall identify the date, time, and description of each startup, shutdown, and malfunction resulting in excess emissions. It shall also identify any steps taken to mitigate emissions during any malfunction as well as any corrective actions taken.

*Note:* Emissions data collected during startup, shutdown, and malfunction may be excluded regardless of whether or not emissions are in excess of any standard.

**[Air Permit PSD-FL-196; Rule 62-210.700, F.A.C.; 40 CFR 60.8; and 40 CFR 60.46a]**

4. **Excess Emissions:** Excess emissions resulting from startup, shutdown or malfunction of a boiler shall be permitted for standards based on short-term averaging periods (shorter than 24-hour averages) as specified in this permit, providing:
  - a. The operators implement best operational practices to minimize emissions, and

- b. Excess emissions do not exceed four (4) hours for startup, four (4) hours for shutdown, nor two (2) hours for malfunction in any 24-hour period (day).

Excess emissions which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during startup, shutdown, or malfunction shall be prohibited. Excess emissions of standards based on long-term averaging periods (24-hour averages or longer) *are not* permitted because compliance is demonstrated by continuous monitor and provisions of this permit allow exclusion of monitoring data for periods of startup, shutdown, and malfunction.

**[Rule 62-210.700, F.A.C.; Rule 62-4.070(3), F.A.C.; 40 CFR 60.8; and 40 CFR 60.46a]**



**ATTACHMENT B: NSPS SUBPART DA RULE EXCERPTS**

**40 CFR 60.46a Compliance Provisions**

- (c) "... The particulate matter emission standards under §60.42a and the nitrogen oxides emission standards under §60.44a apply at all times *except during periods of startup, shutdown, or malfunction.*" (emphasis added)
- (g) "... Compliance is determined by calculating the *arithmetic average of all hourly emission rates for SO<sub>2</sub> and NO<sub>x</sub> for the 30 successive boiler operating days, except for data obtained during startup, shutdown, malfunction (NO<sub>x</sub> only), or emergency conditions (SO<sub>2</sub> only).*" (emphasis added)

**40 CFR 60.47a Emission Monitoring**

- (e) "... The continuous monitoring systems under paragraphs (b), (c), and (d) of this section are operated and data recorded during all periods of operation of the affected facility including periods of startup, shutdown, malfunction or emergency conditions, except for continuous monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments."
- (f) "The owner or operator shall obtain emission data for at least 18 hours in at least 22 out of 30 successive boiler operating days. If this minimum data requirement cannot be met with a continuous monitoring system, the owner or operator shall supplement emission data with other monitoring systems approved by the Administrator or the reference methods and procedures as described in paragraph (h) of this section."
- (g) "The 1-hour averages required under paragraph §60.13(h) are expressed in ng/J (lbs/million Btu) heat input and used to calculate the average emission rates under §60.46a. The 1-hour averages are calculated using the data points required under §60.13(b). At least two data points must be used to calculate the 1-hour averages."
- (h) "When it becomes necessary to supplement continuous monitoring system data to meet the minimum data requirements in paragraph (f) of this section, the owner or operator shall use the reference methods and procedures as specified in this paragraph. Acceptable alternative methods and procedures are given in paragraph (j) of this section."

Filename: OKPLP.DOC



February 17, 1999

**RECEIVED**

**FEB 22 1999**

**BUREAU OF  
AIR REGULATION**

Al Linero, P.E.  
Division Of Air Resources Management  
Florida Department of Environmental Protection  
2600 Blair Stone Road  
Tallahassee, Fl. 32399-2400

Subject: Okeelanta Cogeneration Facilities' Excess Emissions.

*AL*  
Dear Mr. Linero:

For your information a copy of the Okeelanta Cogeneration Facilities' recently submitted excess emissions report is attached. We thought this report would provide you additional information in reviewing facilities' request to modify its permit to increase the emission standard for CO, Periods of Startup, Shutdown etc. This agency has already submitted its comment on the proposed changes.

If you have any question, please call us at S.C. 273-3070 or at (561)355-3070. Thanks.

Sincerely,

For the Division Director  
Environmental Health and Engineering

A handwritten signature in cursive script, appearing to read "Ajaya K. Satyal".

Ajaya K. Satyal, Environmental Manager  
Air Pollution Control Section

C.c. Mike Harley, P.E., DARM, FDEP.

OKEELANTA COGENERATION FACILITY

P.O. Box 9

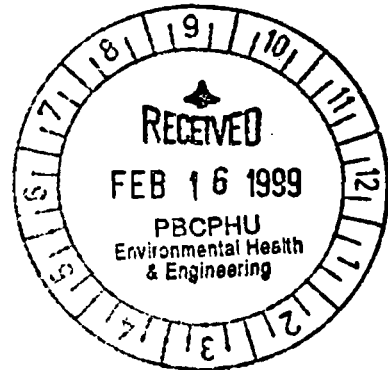
South Bay, Florida 33493

(561) 993-1010

(561) 992-7744 (fax)

February 11, 1999

State of Florida  
Palm Beach County Health Department  
Air Pollution Control Section  
901 Evernia Street  
West Palm Beach, Florida 33402-0029



Attn: Ajaya K. Satyal  
Environmental Manager

Re: Okeelanta Cogeneration Facility  
Excess Emission Report

Dear Mr. Satyal:

Please find enclosed the excess emission reports for the Okeelanta Cogeneration Facility from November 29, 1998 to December 30, 1998. If you have any questions please contact me at (561) 993-1003.

Sincerely,

A handwritten signature in black ink, appearing to read "J.M. Meriwether".

James M. Meriwether  
Environmental Manager

cc: Ricardo Lima  
Gus Cepero  
Rodney Williams

Excess Emissions Notification

Okeelanta Cogeneration Facility  
P.O. Box 9  
South Bay, Florida 33493  
Main Office (561) 993-1010, FAX (561) 996-6596

Date of Excess Emission: 11/28/98 Boiler A  Boiler B  Boiler C

EMISSION INFORMATION

| <u>Emission Parameter</u> | <u>Check One</u>                    | <u>Emission Limit</u>          | <u>Compliance Basis</u>                       | <u>Actual Emissions</u>  |
|---------------------------|-------------------------------------|--------------------------------|---|--------------------------|
| SO <sub>2</sub>           | <input type="checkbox"/>            | 0.05 lb/MMBTU                  | 30 Day Roll. Avg.                             | <input type="checkbox"/> |
| N0x                       | <input type="checkbox"/>            | 0.15 lb/MMBTU                  | 30 Day Roll. Avg.                             | <input type="checkbox"/> |
| CO                        | <input type="checkbox"/>            | 0.35 lb/MMBTU<br>250.3 lb/hour | 24 Hour Avg.                                  | <input type="checkbox"/> |
| Opacity                   | <input checked="" type="checkbox"/> | 20 %<br>27 %                   | 6 Minute Avg.<br>6 Minute in 1 hour<br>period | <u>35%</u>               |

Block Hour(s) of Excess Emissions: 02:24-02:30

Hour Returned to Permit Limit: 02:31

Cause of Excess Emissions: Clinkers on furnace grate, upset conditions at the sugar mill.

Action Taken to Correct Excess Emissions: Removed clinker from grate, stabilized boiler.

Palm Beach County Health Department - Air Pollution Control Section  
Day - (561) 355-3136 Nights and Weekends - (561) 582-5666 Fax - (561) 355-2442

Was Palm Beach County Notified: Yes  No  Person Notified: Ajaya K. Satyal

Date of Notification: 1/22/99 Time of Notification: \_\_\_\_\_ Faxed: Yes  No

Reported By: James M. Meriwether

Excess Emissions Notification

Okeelanta Cogeneration Facility  
P.O. Box 9  
South Bay, Florida 33493  
Main Office (561) 993-1010, FAX (561) 996-6596

Date of Excess Emission: 11/29/98 Boiler A      Boiler B      Boiler C X

EMISSION INFORMATION

| <u>Emission Parameter</u> | <u>Check One</u> | <u>Emission Limit</u>          | <u>Compliance Basis</u>                       | <u>Actual Emissions</u> |
|---------------------------|------------------|--------------------------------|---|-------------------------|
| SO <sub>2</sub>           | <u>    </u>      | 0.05 lb/MMBTU                  | 30 Day Roll.Avg.                              | <u>    </u>             |
| NO <sub>x</sub>           | <u>    </u>      | 0.15 lb/MMBTU                  | 30 Day Roll.Avg.                              | <u>    </u>             |
| CO                        | <u>    </u>      | 0.35 lb/MMBTU<br>250.3 lb/hour | 24 Hour Avg.                                  | <u>    </u>             |
| Opacity                   | <u>X</u>         | 20 %<br>27 %                   | 6 Minute Avg.<br>6 Minute in 1 hour<br>period | <u>43%</u>              |

Block Hour(s) of Excess Emissions: 07:54 to 08:00

Hour Returned to Permit Limit: 08:01

Cause of Excess Emissions: All three boilers tripped due to boiler logic problem.

Action Taken to Correct Excess Emissions: Restarted boilers, resolved logic problem.

Palm Beach County Health Department - Air Pollution Control Section  
Day - (561) 355-3136 Nights and Weekends - (561) 582-5666 Fax - (561) 355-2442

Was Palm Beach County Notified: Yes x No      Person Notified: Ajaya K. Satyal

Date of Notification: 1/22/99 Time of Notification:              Faxed: Yes      No x

Reported By: James M. Meriwether

Excess Emissions Notification

Okeelanta Cogeneration Facility  
P.O. Box 9  
South Bay, Florida 33493  
Main Office (561) 993-1010, FAX (561) 996-6596

Date of Excess Emission: 12/1/98 Boiler A      Boiler B      Boiler C X

EMISSION INFORMATION

| <u>Emission Parameter</u> | <u>Check One</u> | <u>Emission Limit</u>          | <u>Compliance Basis</u>                       | <u>Actual Emissions</u> |
|---------------------------|------------------|--------------------------------|---|-------------------------|
| SO <sub>2</sub>           | <u>    </u>      | 0.05 lb/MMBTU                  | 30 Day Roll.Avg.                              | <u>    </u>             |
| NO <sub>x</sub>           | <u>    </u>      | 0.15 lb/MMBTU                  | 30 Day Roll.Avg.                              | <u>    </u>             |
| CO                        | <u>X</u>         | 0.35 lb/MMBTU<br>250.3 lb/hour | 24 Hour Avg.                                  | <u>.404</u>             |
| Opacity                   | <u>    </u>      | 20 %<br>27 %                   | 6 Minute Avg.<br>6 Minute in 1 hour<br>period | <u>    </u>             |

Block Hour(s) of Excess Emissions: 00:00 - 23:59

Hour Returned to Permit Limit:     

Cause of Excess Emissions: #1 Fuel distribution chain jumped the sprocket, bottom ash collecting conveyor shut down to remove metal debris.

Action Taken to Correct Excess Emissions: Re-aligned fuel distribution chain, removed metal debris from bottom ash collecting conveyor.

Palm Beach County Health Department - Air Pollution Control Section  
Day - (561) 355-3136    Nights and Weekends - (561) 582-5666    Fax - (561) 355-2442

Was Palm Beach County Notified: Yes X No      Person Notified: Ajaya K. Satyal

Date of Notification: 1/22/99 Time of Notification:      Faxed: Yes      No X

Reported By: James M. Meriwether

Excess Emissions Notification

Okceclanta Cogeneration Facility  
P.O. Box 9  
South Bay, Florida 33493  
Main Office (561) 993-1010, FAX (561) 996-6596

Date of Excess Emission: 12/17/98      Boiler A \_\_\_\_\_ Boiler B X      Boiler C \_\_\_\_\_

EMISSION INFORMATION

| <u>Emission Parameter</u> | <u>Check One</u> | <u>Emission Limit</u>          | <u>Compliance Basis</u>                    | <u>Actual Emissions</u> |
|---------------------------|------------------|--------------------------------|--|-------------------------|
| SO <sub>2</sub>           | _____            | 0.05 lb/MMBTU                  | 30 Day Roll.Avg.                           | _____                   |
| NO <sub>x</sub>           | _____            | 0.15 lb/MMBTU                  | 30 Day Roll.Avg.                           | _____                   |
| CO                        | <u>X</u>         | 0.35 lb/MMBTU<br>250.3 lb/hour | 24 Hour Avg.                               | <u>.467</u>             |
| Opacity                   | _____            | 20 %<br>27 %                   | 6 Minute Avg.<br>6 Minute in 1 hour period | _____                   |

Block Hour(s) of Excess Emissions: 00:00 to 23:59

Hour Returned to Permit Limit: \_\_\_\_\_

Cause of Excess Emissions: Shut down bottom ash collecting conveyor to remove metal debris. Generator breaker tripped.

Action Taken to Correct Excess Emissions: Removed metal debris from bottom ash collecting conveyor. Started repairs on generator breaker.

Palm Beach County Health Department - Air Pollution Control Section  
Day - (561) 355-3136      Nights and Weekends - (561) 582-5666      Fax - (561) 355-2442

Was Palm Beach County Notified: Yes xNo \_\_\_\_\_ Person Notified: Ajaya K. Satyal

Date of Notification: 1/22/98      Time of Notification: \_\_\_\_\_      Faxed: Yes \_\_\_ No x

Reported By: James M. Meriwether

Excess Emissions Notification

Okeelanta Cogeneration Facility  
P.O. Box 9  
South Bay, Florida 33493  
Main Office (561) 993-1010, FAX (561) 996-6596

Date of Excess Emission: 12/19/98      Boiler A             Boiler B             Boiler C   X  

EMISSION INFORMATION

| <u>Emission Parameter</u> | <u>Check One</u> | <u>Emission Limit</u>          | <u>Compliance Basis</u>                       | <u>Actual Emissions</u> |
|---------------------------|------------------|--------------------------------|---|-------------------------|
| SO <sub>2</sub>           | <u>      </u>    | 0.05 lb/MMBTU                  | 30 Day Roll.Avg.                              | <u>      </u>           |
| NO <sub>x</sub>           | <u>      </u>    | 0.15 lb/MMBTU                  | 30 Day Roll.Avg.                              | <u>      </u>           |
| CO                        | <u>  X  </u>     | 0.35 lb/MMBTU<br>250.3 lb/hour | 24 Hour Avg.                                  | <u>  .356  </u>         |
| Opacity                   | <u>      </u>    | 20 %<br>27 %                   | 6 Minute Avg.<br>6 Minute in 1 hour<br>period | <u>      </u>           |

Block Hour(s) of Excess Emissions: 00:00 to 23:59

Hour Returned to Permit Limit:       

Cause of Excess Emissions: I.D. fan damper problems, fuel feeders plugged, fuel feeders tripped.

Action Taken to Correct Excess Emissions: Adjusted I.D. fan damper, unplugged and restarted fuel feeders.

Palm Beach County Health Department - Air Pollution Control Section  
Day - (561) 355-3136      Nights and Weekends - (561) 582-5666      Fax - (561) 355-2442

Was Palm Beach County Notified: Yes x No         Person Notified: Ajaya K. Satyal

Date of Notification: 1/22/99      Time of Notification:             Faxed: Yes    No x

Reported By: James M. Meriwether



Excess Emissions Notification

Okcelanta Cogeneration Facility  
P.O. Box 9  
South Bay, Florida 33493  
Main Office (561) 993-1010, FAX (561) 996-6596

Date of Excess Emission: 12/24/98      Boiler A \_\_\_\_\_ Boiler B X      Boiler C \_\_\_\_\_

EMISSION INFORMATION

| <u>Emission Parameter</u> | <u>Check One</u> | <u>Emission Limit</u>          | <u>Compliance Basis</u>                       | <u>Actual Emissions</u> |
|---------------------------|------------------|--------------------------------|---|-------------------------|
| SO <sub>2</sub>           | _____            | 0.05 lb/MMBTU                  | 30 Day Roll.Avg.                              | _____                   |
| NO <sub>x</sub>           | _____            | 0.15 lb/MMBTU                  | 30 Day Roll.Avg.                              | _____                   |
| CO                        | <u>X</u>         | 0.35 lb/MMBTU<br>250.3 lb/hour | 24 Hour Avg.                                  | <u>.703</u>             |
| Opacity                   | _____            | 20 %<br>27 %                   | 6 Minute Avg.<br>6 Minute in 1 hour<br>period | _____                   |

Block Hour(s) of Excess Emissions: 00:00 to 23:59

Hour Returned to Permit Limit: \_\_\_\_\_

Cause of Excess Emissions: Plant shutdown for maintenance outage.

Action Taken to Correct Excess Emissions: \_\_\_\_\_

Palm Beach County Health Department - Air Pollution Control Section  
Day - (561) 355-3136      Nights and Weekends - (561) 582-5666      Fax - (561) 355-2442

Was Palm Beach County Notified: Yes X No \_\_\_\_\_      Person Notified: Ajaya K. Satyal

Date of Notification: 1/22/99      Time of Notification: \_\_\_\_\_      Faxed: Yes \_\_\_\_\_ No X

Reported By: James M. Meriwether

Excess Emissions Notification

Okeclanta Cogeneration Facility  
P.O. Box 9  
South Bay, Florida 33493  
Main Office (561) 993-1010, FAX (561) 996-6596

Date of Excess Emission: 12/25/98 Boiler A X Boiler B \_\_\_\_\_ Boiler C \_\_\_\_\_

EMISSION INFORMATION

| <u>Emission Parameter</u> | <u>Check One</u> | <u>Emission Limit</u>          | <u>Compliance Basis</u>                       | <u>Actual Emissions</u> |
|---------------------------|------------------|--------------------------------|---|-------------------------|
| SO <sub>2</sub>           | _____            | 0.05 lb/MMBTU                  | 30 Day Roll.Avg.                              | _____                   |
| NO <sub>x</sub>           | _____            | 0.15 lb/MMBTU                  | 30 Day Roll.Avg.                              | _____                   |
| CO                        | _____            | 0.35 lb/MMBTU<br>250.3 lb/hour | 24 Hour Avg.                                  | _____                   |
| Opacity                   | <u>X</u>         | 20 %<br>27 %                   | 6 Minute Avg.<br>6 Minute in 1 hour<br>period | <u>28%, 54%, 71%</u>    |

Block Hour(s) of Excess Emissions: 23:18-23:24, 23:48-23:54, 23:54-00:00.

Hour Returned to Permit Limit: 00:06

Cause of Excess Emissions: Startup conditions, burning fuel oil.

Action Taken to Correct Excess Emissions: Started feeding solid fuel, stabilized boiler.

Palm Beach County Health Department - Air Pollution Control Section  
Day - (561) 355-3136 Nights and Weekends - (561) 582-5666 Fax - (561) 355-2442

Was Palm Beach County Notified: Yes xNo \_\_\_\_\_ Person Notified: Ajaya K. Satyal

Date of Notification: 1/22/99 Time of Notification: \_\_\_\_\_ Faxed: Yes \_\_\_\_\_ NoX

Reported By: James M. Meriwether

Excess Emissions Notification

Okceclanta Cogeneration Facility  
P.O. Box 9  
South Bay, Florida 33493  
Main Office (561) 993-1010, FAX (561) 996-6596

Date of Excess Emission: 12/25/98 Boiler A        Boiler B X Boiler C       

EMISSION INFORMATION

| <u>Emission Parameter</u> | <u>Check One</u> | <u>Emission Limit</u>          | <u>Compliance Basis</u>                    | <u>Actual Emissions</u> |
|---------------------------|------------------|--------------------------------|--|-------------------------|
| SO <sub>2</sub>           | <u>      </u>    | 0.05 lb/MMBTU                  | 30 Day Roll.Avg.                           | <u>      </u>           |
| NO <sub>x</sub>           | <u>      </u>    | 0.15 lb/MMBTU                  | 30 Day Roll.Avg.                           | <u>      </u>           |
| CO                        | <u>X</u>         | 0.35 lb/MMBTU<br>250.3 lb/hour | 24 Hour Avg.                               | <u>2.596</u>            |
| Opacity                   | <u>      </u>    | 20 %<br>27 %                   | 6 Minute Avg.<br>6 Minute in 1 hour period | <u>      </u>           |

Block Hour(s) of Excess Emissions: 00:00-23:59

Hour Returned to Permit Limit:       

Cause of Excess Emissions: Turbine tripped due to problems with synchronizing turning gear, shutdown boiler, startup boiler, boiler tripped due to low drum level, boiler tripped due to problem with wood unloading system.

Action Taken to Correct Excess Emissions: Resolved problems and restarted boiler.

Palm Beach County Health Department - Air Pollution Control Section  
Day - (561) 355-3136    Nights and Weekends - (561) 582-5666    Fax - (561) 355-2442

Was Palm Beach County Notified: Yes XNo        Person Notified: Ajaya K. Satyal

Date of Notification: 1/22/99 Time of Notification:        Faxed: Yes        Nox       

Reported By: James M. Meriwether

Excess Emissions Notification

Okeclanta Cogeneration Facility  
P.O. Box 9  
South Bay, Florida 33493  
Main Office (561) 993-1010, FAX (561) 996-6596

Date of Excess Emission: 12/25/98      Boiler A             Boiler B X      Boiler C       

EMISSION INFORMATION

| <u>Emission Parameter</u> | <u>Check One</u> | <u>Emission Limit</u>          | <u>Compliance Basis</u>                       | <u>Actual Emissions</u>          |
|---------------------------|------------------|--------------------------------|---|----------------------------------|
| SO <sub>2</sub>           | <u>      </u>    | 0.05 lb/MMBTU                  | 30 Day Roll.Avg.                              | <u>      </u>                    |
| NO <sub>x</sub>           | <u>      </u>    | 0.15 lb/MMBTU                  | 30 Day Roll.Avg.                              | <u>      </u>                    |
| CO                        | <u>      </u>    | 0.35 lb/MMBTU<br>250.3 lb/hour | 24 Hour Avg.                                  | <u>      </u>                    |
| Opacity                   | <u>X</u>         | 20 %<br>27 %                   | 6 Minute Avg.<br>6 Minute in 1 hour<br>period | 37%, 46%, 39%, 29%, 31%,<br>24%. |

Block Hour(s) of Excess Emissions: 02:30-02:36, 18:36-19:00, 19:12-19:18.

Hour Returned to Permit Limit:       

Cause of Excess Emissions: Turbine tripped due to problems with synchronizing  
turing gear, shutdown boiler, restarted boiler, boiler tripped due to low  
drum level, boiler tripped due to problem with wood unloading system.

Action Taken to Correct Excess Emissions: Resolved problems and restarted boiler.

Palm Beach County Health Department - Air Pollution Control Section  
Day - (561) 355-3136      Nights and Weekends - (561) 582-5666      Fax - (561) 355-2442

Was Palm Beach County Notified: Yes x No             Person Notified: Ajaya K. Satyal

Date of Notification: 1/22/99      Time of Notification:             Faxed: Yes        No x

Reported By: James M. Meriwether

Excess Emissions Notification

Okeelanta Cogeneration Facility  
P.O. Box 9  
South Bay, Florida 33493  
Main Office (561) 993-1010, FAX (561) 996-6596

Date of Excess Emission: 12/25/98      Boiler A             Boiler B             Boiler C   X  

EMISSION INFORMATION

| <u>Emission Parameter</u> | <u>Check One</u> | <u>Emission Limit</u>          | <u>Compliance Basis</u>                       | <u>Actual Emissions</u> |
|---------------------------|------------------|--------------------------------|---|-------------------------|
| SO <sub>2</sub>           | <u>      </u>    | 0.05 lb/MMBTU                  | 30 Day Roll Avg.                              | <u>      </u>           |
| NO <sub>x</sub>           | <u>      </u>    | 0.15 lb/MMBTU                  | 30 Day Roll Avg.                              | <u>      </u>           |
| CO                        | <u>      </u>    | 0.35 lb/MMBTU<br>250.3 lb/hour | 24 Hour Avg.                                  | <u>      </u>           |
| Opacity                   | <u>  X  </u>     | 20 %<br>27 %                   | 6 Minute Avg.<br>6 Minute in 1 hour<br>period | <u>  54%  </u>          |

Block Hour(s) of Excess Emissions: 22:06-22:12

Hour Returned to Permit Limit: 22:13

Cause of Excess Emissions: Startup conditions.

Action Taken to Correct Excess Emissions: Brought boiler on-line.

Palm Beach County Health Department - Air Pollution Control Section  
Day - (561) 355-3136      Nights and Weekends - (561) 582-5666      Fax - (561) 355-2442

Was Palm Beach County Notified: Yes x No         Person Notified: Ajaya K. Satyal

Date of Notification: 1/22/99      Time of Notification:                 Faxed: Yes    No X

Reported By: James M. Meriwether

Excess Emissions Notification

Okeelanta Cogeneration Facility  
P.O. Box 9  
South Bay, Florida 33493  
Main Office (561) 993-1010, FAX (561) 996-6596

Date of Excess Emission: 12/26/98      Boiler A X      Boiler B \_\_\_\_\_      Boiler C \_\_\_\_\_

EMISSION INFORMATION

| <u>Emission Parameter</u> | <u>Check One</u> | <u>Emission Limit</u>          | <u>Compliance Basis</u>                       | <u>Actual Emissions</u> |
|---------------------------|------------------|--------------------------------|---|-------------------------|
| SO <sub>2</sub>           | _____            | 0.05 lb/MMBTU                  | 30 Day Roll.Avg.                              | _____                   |
| NO <sub>x</sub>           | _____            | 0.15 lb/MMBTU                  | 30 Day Roll.Avg.                              | _____                   |
| CO                        | <u>X</u>         | 0.35 lb/MMBTU<br>250.3 lb/hour | 24 Hour Avg.                                  | <u>.385</u>             |
| Opacity                   | _____            | 20 %<br>27 %                   | 6 Minute Avg.<br>6 Minute in 1 hour<br>period | _____                   |

Block Hour(s) of Excess Emissions: 00:00 - 23:59

Hour Returned to Permit Limit: \_\_\_\_\_

Cause of Excess Emissions: Numerous plugged fuel feeders during day.

Action Taken to Correct Excess Emissions: Unplugged fuel feeders

Palm Beach County Health Department - Air Pollution Control Section  
Day - (561) 355-3136      Nights and Weekends - (561) 582-5666      Fax - (561) 355-2442

Was Palm Beach County Notified: Yes X No \_\_\_\_\_      Person Notified: Ajaya K. Satyal

Date of Notification: 2/11/99      Time of Notification: \_\_\_\_\_      Faxed: Yes \_\_\_\_\_ No X

Reported By: James M. Meriwether

Excess Emissions Notification

Okcelanta Cogeneration Facility  
P.O. Box 9  
South Bay, Florida 33493  
Main Office (561) 993-1010, FAX (561) 996-6596

Date of Excess Emission: 12/26/98 Boiler A X Boiler B \_\_\_\_\_ Boiler C \_\_\_\_\_

EMISSION INFORMATION

| <u>Emission Parameter</u> | <u>Check One</u> | <u>Emission Limit</u>          | <u>Compliance Basis</u>                       | <u>Actual Emissions</u> |
|---------------------------|------------------|--------------------------------|---|-------------------------|
| SO <sub>2</sub>           | _____            | 0.05 lb/MMBTU                  | 30 Day Roll.Avg.                              | _____                   |
| NO <sub>x</sub>           | _____            | 0.15 lb/MMBTU                  | 30 Day Roll.Avg.                              | _____                   |
| CO                        | _____            | 0.35 lb/MMBTU<br>250.3 lb/hour | 24 Hour Avg.                                  | _____                   |
| Opacity                   | <u>X</u>         | 20 %<br>27 %                   | 6 Minute Avg.<br>6 Minute in 1 hour<br>period | <u>80% to 83%</u>       |

Block Hour(s) of Excess Emissions: 00:00 to 00:36

Hour Returned to Permit Limit: 00:37

Cause of Excess Emissions: Startup conditions.

Action Taken to Correct Excess Emissions: Brought boiler online.

Palm Beach County Health Department - Air Pollution Control Section  
Day - (561) 355-3136 Nights and Weekends - (561) 582-5666 Fax - (561) 355-2442

Was Palm Beach County Notified: Yes x No \_\_\_\_\_ Person Notified: Ajaya K. Satyal

Date of Notification: 2/11/99 Time of Notification: \_\_\_\_\_ Faxed: Yes \_\_\_\_\_ No x

Reported By: James M. Meriwether

Excess Emissions Notification

Okeclanta Cogeneration Facility  
P.O. Box 9  
South Bay, Florida 33493  
Main Office (561) 993-1010, FAX (561) 996-6596

Date of Excess Emission: 12/26/98      Boiler A \_\_\_\_\_ Boiler B X      Boiler C \_\_\_\_\_

EMISSION INFORMATION

| <u>Emission Parameter</u> | <u>Check One</u> | <u>Emission Limit</u>          | <u>Compliance Basis</u>                    | <u>Actual Emissions</u> |
|---------------------------|------------------|--------------------------------|--|-------------------------|
| SO <sub>2</sub>           | _____            | 0.05 lb/MMBTU                  | 30 Day Roll. Avg.                          | _____                   |
| NO <sub>x</sub>           | _____            | 0.15 lb/MMBTU                  | 30 Day Roll. Avg.                          | _____                   |
| CO                        | <u>X</u>         | 0.35 lb/MMBTU<br>250.3 lb/hour | 24 Hour Avg.                               | <u>.352</u>             |
| Opacity                   | _____            | 20 %<br>27 %                   | 6 Minute Avg.<br>6 Minute in 1 hour period | _____                   |

Block Hour(s) of Excess Emissions: 00:00 to 23:59

Hour Returned to Permit Limit: \_\_\_\_\_

Cause of Excess Emissions: Broken shear pin on #1 Distribution Fuel Conveyor.

Boiler fuel feed system tripped.

Action Taken to Correct Excess Emissions: Repaired broken shear pin and restarted boiler.

Palm Beach County Health Department - Air Pollution Control Section  
Day - (561) 355-3136      Nights and Weekends - (561) 582-5666      Fax - (561) 355-2442

Was Palm Beach County Notified: Yes X No \_\_\_\_\_ Person Notified: Ajaya K. Satyal

Date of Notification: 2/11/99      Time of Notification: \_\_\_\_\_      Faxed: Yes \_\_\_\_\_ No X

Reported By: James M. Meriwether



Excess Emissions Notification

Okceclanta Cogeneration Facility  
P.O. Box 9  
South Bay, Florida 33493  
Main Office (561) 993-1010, FAX (561) 996-6596

Date of Excess Emission: 12/26/98 Boiler A        Boiler B        Boiler C   X  

EMISSION INFORMATION

| <u>Emission Parameter</u> | <u>Check One</u> | <u>Emission Limit</u>          | <u>Compliance Basis</u>                       | <u>Actual Emissions</u> |
|---------------------------|------------------|--------------------------------|---|-------------------------|
| SO <sub>2</sub>           | <u>      </u>    | 0.05 lb/MMBTU                  | 30 Day Roll.Avg.                              | <u>      </u>           |
| NO <sub>x</sub>           | <u>      </u>    | 0.15 lb/MMBTU                  | 30 Day Roll.Avg.                              | <u>      </u>           |
| CO                        | <u>  X  </u>     | 0.35 lb/MMBTU<br>250.3 lb/hour | 24 Hour Avg.                                  | <u>  .383  </u>         |
| Opacity                   | <u>      </u>    | 20 %<br>27 %                   | 6 Minute Avg.<br>6 Minute in 1 hour<br>period | <u>      </u>           |

Block Hour(s) of Excess Emissions: 00:00 to 23:59

Hour Returned to Permit Limit:       

Cause of Excess Emissions: Broken shear pin on #1 Distribution Fuel Conveyor.

Boiler fuel feed system tripped.

Action Taken to Correct Excess Emissions: Repaired broken shear pin and restarted boiler.

Palm Beach County Health Department - Air Pollution Control Section  
Day - (561) 355-3136    Nights and Weekends - (561) 582-5666    Fax - (561) 355-2442

Was Palm Beach County Notified: Yes   X   No       Person Notified: Ajaya K. Satyal

Date of Notification:   2/11/99      Time of Notification:           Faxed: Yes    No   X  

Reported By:   James M. Meriwether

Excess Emissions Notification

Okcelanta Cogeneration Facility  
P.O. Box 9  
South Bay, Florida 33493  
Main Office (561) 993-1010, FAX (561) 996-6596

Date of Excess Emission: 12/27/98      Boiler A \_\_\_\_\_ Boiler B \_\_\_\_\_ Boiler C X

EMISSION INFORMATION

| <u>Emission Parameter</u> | <u>Check One</u> | <u>Emission Limit</u>          | <u>Compliance Basis</u>                       | <u>Actual Emissions</u> |
|---------------------------|------------------|--------------------------------|---|-------------------------|
| SO <sub>2</sub>           | _____            | 0.05 lb/MMBTU                  | 30 Day Roll.Avg.                              | _____                   |
| NO <sub>x</sub>           | _____            | 0.15 lb/MMBTU                  | 30 Day Roll.Avg.                              | _____                   |
| CO                        | <u>X</u>         | 0.35 lb/MMBTU<br>250.3 lb/hour | 24 Hour Avg.                                  | <u>.537</u>             |
| Opacity                   | _____            | 20 %<br>27 %                   | 6 Minute Avg.<br>6 Minute in 1 hour<br>period | _____                   |

Block Hour(s) of Excess Emissions: 00:00 to 23:59

Hour Returned to Permit Limit: \_\_\_\_\_

Cause of Excess Emissions: Boiler fuel system tripped due to recycle conveyor head misalignment.

Action Taken to Correct Excess Emissions: Repaired recycle conveyor and resumed operations.

Palm Beach County Health Department - Air Pollution Control Section  
Day - (561) 355-3136    Nights and Weekends - (561) 582-5666    Fax - (561) 355-2442

Was Palm Beach County Notified: Yes X No \_\_\_\_\_ Person Notified: Ajaya K. Satyal

Date of Notification: 2/11/99 Time of Notification: \_\_\_\_\_ Faxed: Yes \_\_\_\_\_ No X

Reported By: James M. Meriwether

Excess Emissions Notification

Okeelanta Cogeneration Facility  
P.O. Box 9  
South Bay, Florida 33493  
Main Office (561) 993-1010, FAX (561) 996-6596

Date of Excess Emission: 12/28/98 Boiler A X Boiler B \_\_\_\_\_ Boiler C \_\_\_\_\_

EMISSION INFORMATION

| <u>Emission Parameter</u> | <u>Check One</u> | <u>Emission Limit</u>          | <u>Compliance Basis</u>                       | <u>Actual Emissions</u> |
|---------------------------|------------------|--------------------------------|---|-------------------------|
| SO <sub>2</sub>           | _____            | 0.05 lb/MMBTU                  | 30 Day Roll.Avg.                              | _____                   |
| NO <sub>x</sub>           | _____            | 0.15 lb/MMBTU                  | 30 Day Roll.Avg.                              | _____                   |
| CO                        | _____            | 0.35 lb/MMBTU<br>250.3 lb/hour | 24 Hour Avg.                                  | _____                   |
| Opacity                   | <u>X</u>         | 20 %<br>27 %                   | 6 Minute Avg.<br>6 Minute in 1 hour<br>period | <u>23%, 28%</u>         |

Block Hour(s) of Excess Emissions: 19:54-20:00, 20:06-20:12

Hour Returned to Permit Limit: \_\_\_\_\_

Cause of Excess Emissions: Bottom ash collecting conveyor tripped due to broken chain. Plugged fuel feeders.

Action Taken to Correct Excess Emissions: Repaired bottom ash chain and unplugged fuel feeders.

Palm Beach County Health Department - Air Pollution Control Section  
Day - (561) 355-3136 Nights and Weekends - (561) 582-5666 Fax - (561) 355-2442

Was Palm Beach County Notified: Yes X No \_\_\_\_\_ Person Notified: Ajaya K. Satyal

Date of Notification: 2/11/99 Time of Notification: \_\_\_\_\_ Faxed: Yes \_\_\_\_\_ No X

Reported By: James M. Meriwether

Excess Emissions Notification

Okeclanta Cogeneration Facility  
P.O. Box 9  
South Bay, Florida 33493  
Main Office (561) 993-1010, FAX (561) 996-6596

Date of Excess Emission: 12/28/98      Boiler A             Boiler B             Boiler C   X  

EMISSION INFORMATION

| <u>Emission Parameter</u> | <u>Check One</u> | <u>Emission Limit</u>          | <u>Compliance Basis</u>                    | <u>Actual Emissions</u> |
|---------------------------|------------------|--------------------------------|--|-------------------------|
| SO <sub>2</sub>           | <u>      </u>    | 0.05 lb/MMBTU                  | 30 Day Roll.Avg.                           | <u>      </u>           |
| NO <sub>x</sub>           | <u>      </u>    | 0.15 lb/MMBTU                  | 30 Day Roll.Avg.                           | <u>      </u>           |
| CO                        | <u>  X  </u>     | 0.35 lb/MMBTU<br>250.3 lb/hour | 24 Hour Avg.                               | <u>  .448  </u>         |
| Opacity                   | <u>      </u>    | 20 %<br>27 %                   | 6 Minute Avg.<br>6 Minute in 1 hour period | <u>      </u>           |

Block Hour(s) of Excess Emissions: 00:00 to 23:59

Hour Returned to Permit Limit:       

Cause of Excess Emissions: Bagasse reclaimer tripped due to speed fault. Bottom ash collecting conveyor tripped due to broken chain.

Action Taken to Correct Excess Emissions: Reset and restarted bagasse reclaimer. Repaired bottom ash chain.

Palm Beach County Health Department - Air Pollution Control Section  
Day - (561) 355-3136    Nights and Weekends - (561) 582-5666    Fax - (561) 355-2442

Was Palm Beach County Notified: Yes   X  No           Person Notified: Ajaya K. Satyal

Date of Notification:   2/11/99      Time of Notification:           Faxed: Yes        No   X  

Reported By: James M. Meriwether

*Excess Emissions Notification*

Okeclanta Cogeneration Facility  
P.O. Box 9  
South Bay, Florida 33493  
Main Office (561) 993-1010, FAX (561) 996-6596

Date of Excess Emission: 12/29/98 Boiler A X Boiler B \_\_\_\_\_ Boiler C \_\_\_\_\_

EMISSION INFORMATION

| <u>Emission Parameter</u> | <u>Check One</u> | <u>Emission Limit</u>          | <u>Compliance Basis</u>                       | <u>Actual Emissions</u> |
|---------------------------|------------------|--------------------------------|---|-------------------------|
| SO <sub>2</sub>           | _____            | 0.05 lb/MMBTU                  | 30 Day Roll.Avg.                              | _____                   |
| NO <sub>x</sub>           | _____            | 0.15 lb/MMBTU                  | 30 Day Roll.Avg.                              | _____                   |
| CO                        | _____            | 0.35 lb/MMBTU<br>250.3 lb/hour | 24 Hour Avg.                                  | _____                   |
| Opacity                   | <u>X</u>         | 20 %<br>27 %                   | 6 Minute Avg.<br>6 Minute in 1 hour<br>period | <u>21%, 42%</u>         |

Block Hour(s) of Excess Emissions: 13:12-13:18, 18:36-18:42

Hour Returned to Permit Limit: \_\_\_\_\_

Cause of Excess Emissions: Load swing.

Action Taken to Correct Excess Emissions: Stabilized boiler.

Palm Beach County Health Department - Air Pollution Control Section  
Day - (561) 355-3136 Nights and Weekends - (561) 582-5666 Fax - (561) 355-2442

Was Palm Beach County Notified: Yes X No \_\_\_\_\_ Person Notified: Ajaya K. Satyal

Date of Notification: 2/11/99 Time of Notification: \_\_\_\_\_ Faxed: Yes \_\_\_\_\_ No X

Reported By: James M. Meriwether

Excess Emissions Notification

Okcelanta Cogeneration Facility  
P.O. Box 9  
South Bay, Florida 33493  
Main Office (561) 993-1010, FAX (561) 996-6596

Date of Excess Emission: 12/29/98      Boiler A \_\_\_\_\_ Boiler B X Boiler C \_\_\_\_\_

EMISSION INFORMATION

| <u>Emission Parameter</u> | <u>Check One</u> | <u>Emission Limit</u>          | <u>Compliance Basis</u>                       | <u>Actual Emissions</u> |
|---------------------------|------------------|--------------------------------|---|-------------------------|
| SO <sub>2</sub>           | _____            | 0.05 lb/MMBTU                  | 30 Day Roll.Avg.                              | _____                   |
| NO <sub>x</sub>           | _____            | 0.15 lb/MMBTU                  | 30 Day Roll.Avg.                              | _____                   |
| CO                        | <u>X</u>         | 0.35 lb/MMBTU<br>250.3 lb/hour | 24 Hour Avg.                                  | <u>.454</u>             |
| Opacity                   | _____            | 20 %<br>27 %                   | 6 Minute Avg.<br>6 Minute in 1 hour<br>period | _____                   |

Block Hour(s) of Excess Emissions: 00:00 to 23:59

Hour Returned to Permit Limit: \_\_\_\_\_

Cause of Excess Emissions: Bottom ash system plugged, doors open to work on system.

Action Taken to Correct Excess Emissions: Unplugged system, resumed operations.

Palm Beach County Health Department - Air Pollution Control Section  
Day - (561) 355-3136      Nights and Weekends - (561) 582-5666      Fax - (561) 355-2442

Was Palm Beach County Notified: Yes X No \_\_\_\_\_ Person Notified: Ajaya K. Satyal

Date of Notification: 2/11/99 Time of Notification: \_\_\_\_\_ Faxed: Yes \_\_\_\_\_ No X

Reported By: James M. Meriwether

Excess Emissions Notification

Okceclanta Cogeneration Facility  
P.O. Box 9  
South Bay, Florida 33493  
Main Office (561) 993-1010, FAX (561) 996-6596

Date of Excess Emission: 12/29/98 Boiler A      Boiler B      Boiler C X

EMISSION INFORMATION

| <u>Emission Parameter</u> | <u>Check One</u> | <u>Emission Limit</u>          | <u>Compliance Basis</u>                       | <u>Actual Emissions</u> |
|---------------------------|------------------|--------------------------------|---|-------------------------|
| SO <sub>2</sub>           | <u>    </u>      | 0.05 lb/MMBTU                  | 30 Day Roll.Avg.                              | <u>    </u>             |
| NO <sub>x</sub>           | <u>    </u>      | 0.15 lb/MMBTU                  | 30 Day Roll.Avg.                              | <u>    </u>             |
| CO                        | <u>X</u>         | 0.35 lb/MMBTU<br>250.3 lb/hour | 24 Hour Avg.                                  | <u>.552</u>             |
| Opacity                   | <u>    </u>      | 20 %<br>27 %                   | 6 Minute Avg.<br>6 Minute in 1 hour<br>period | <u>    </u>             |

Block Hour(s) of Excess Emissions: 00:00 to 23:59

Hour Returned to Permit Limit:     

Cause of Excess Emissions: Bottom ash collecting conveyor tripped due to broken chain.

Action Taken to Correct Excess Emissions: Repaired bottom ash chain and resumed operations.

Palm Beach County Health Department - Air Pollution Control Section  
Day - (561) 355-3136    Nights and Weekends - (561) 582-5666    Fax - (561) 355-2442

Was Palm Beach County Notified: Yes X No      Person Notified: Ajaya K. Satyal

Date of Notification: 2/11/99 Time of Notification:      Faxed: Yes      No X

Reported By: James M. Meriwether

Excess Emissions Notification

Okeelanta Cogeneration Facility  
P.O. Box 9  
South Bay, Florida 33493  
Main Office (561) 993-1010, FAX (561) 996-6596

Date of Excess Emission: 12/30/98      Boiler A       Boiler B       Boiler C

EMISSION INFORMATION

| <u>Emission Parameter</u> | <u>Check One</u>                    | <u>Emission Limit</u>          | <u>Compliance Basis</u>                    | <u>Actual Emissions</u>  |
|---------------------------|-------------------------------------|--------------------------------|--|--------------------------|
| SO <sub>2</sub>           | <input type="checkbox"/>            | 0.05 lb/MMBTU                  | 30 Day Roll. Avg.                          | <input type="checkbox"/> |
| NO <sub>x</sub>           | <input type="checkbox"/>            | 0.15 lb/MMBTU                  | 30 Day Roll. Avg.                          | <input type="checkbox"/> |
| CO                        | <input checked="" type="checkbox"/> | 0.35 lb/MMBTU<br>250.3 lb/hour | 24 Hour Avg.                               | <u>.484</u>              |
| Opacity                   | <input type="checkbox"/>            | 20 %<br>27 %                   | 6 Minute Avg.<br>6 Minute in 1 hour period | <input type="checkbox"/> |

Block Hour(s) of Excess Emissions: 00:00 to 23:59

Hour Returned to Permit Limit: \_\_\_\_\_

Cause of Excess Emissions: Bottom ash collecting conveyor tripped due to broken chain.

Action Taken to Correct Excess Emissions: Repaired bottom ash conveyor and resumed operations.

Palm Beach County Health Department - Air Pollution Control Section  
Day - (561) 355-3136      Nights and Weekends - (561) 582-5666      Fax - (561) 355-2442

Was Palm Beach County Notified: Yes  No       Person Notified: Ajaya K. Satyal

Date of Notification: 2/11/99      Time of Notification: \_\_\_\_\_      Faxed: Yes  No

Reported By: James M. Meriwether



Excess Emissions Notification

Okceclanta Cogeneration Facility  
P.O. Box 9  
South Bay, Florida 33493  
Main Office (561) 993-1010, FAX (561) 996-6596

Date of Excess Emission: 12/30/98      Boiler A     Boiler B \_\_\_\_\_    Boiler C \_\_\_\_\_

EMISSION INFORMATION

| <u>Emission Parameter</u> | <u>Check One</u> | <u>Emission Limit</u>          | <u>Compliance Basis</u>                       | <u>Actual Emissions</u> |
|---------------------------|------------------|--------------------------------|---|-------------------------|
| SO <sub>2</sub>           | _____            | 0.05 lb/MMBTU                  | 30 Day Roll.Avg.                              | _____                   |
| NO <sub>x</sub>           | _____            | 0.15 lb/MMBTU                  | 30 Day Roll.Avg.                              | _____                   |
| CO                        | _____            | 0.35 lb/MMBTU<br>250.3 lb/hour | 24 Hour Avg.                                  | _____                   |
| Opacity                   | <u>X</u>         | 20 %<br>27 %                   | 6 Minute Avg.<br>6 Minute in 1 hour<br>period | <u>40%</u>              |

Block Hour(s) of Excess Emissions: 04:06 to 04:12

Hour Returned to Permit Limit: 04:13

Cause of Excess Emissions: Load swing.

Action Taken to Correct Excess Emissions: Stabilized boiler and resumed operations.

Palm Beach County Health Department - Air Pollution Control Section  
Day - (561) 355-3136    Nights and Weekends - (561) 582-5666    Fax - (561) 355-2442

Was Palm Beach County Notified: Yes  No \_\_\_\_\_    Person Notified: Ajaya K. Satyal

Date of Notification: 2/11/99    Time of Notification: \_\_\_\_\_    Faxed: Yes \_\_\_\_\_ No

Reported By: James M. Meriwether

Excess Emissions Notification

Okeelanta Cogeneration Facility  
P.O. Box 9  
South Bay, Florida 33493  
Main Office (561) 993-1010. FAX (561) 996-6596

Date of Excess Emission: 12/30/98 Boiler A        Boiler B        Boiler C X

EMISSION INFORMATION

| <u>Emission Parameter</u> | <u>Check One</u> | <u>Emission Limit</u>          | <u>Compliance Basis</u>                       | <u>Actual Emissions</u> |
|---------------------------|------------------|--------------------------------|---|-------------------------|
| SO <sub>2</sub>           | <u>      </u>    | 0.05 lb/MMBTU                  | 30 Day Roll. Avg.                             | <u>      </u>           |
| NO <sub>x</sub>           | <u>      </u>    | 0.15 lb/MMBTU                  | 30 Day Roll. Avg.                             | <u>      </u>           |
| CO                        | <u>X</u>         | 0.35 lb/MMBTU<br>250.3 lb/hour | 24 Hour Avg.                                  | <u>.427</u>             |
| Opacity                   | <u>      </u>    | 20 %<br>27 %                   | 6 Minute Avg.<br>6 Minute in 1 hour<br>period | <u>      </u>           |

Block Hour(s) of Excess Emissions: 00:00 to 23:59

Hour Returned to Permit Limit:       

Cause of Excess Emissions: Bottom ash collecting conveyor tripped due to broken chain.  
Boiler shutdown for tube leak repairs.

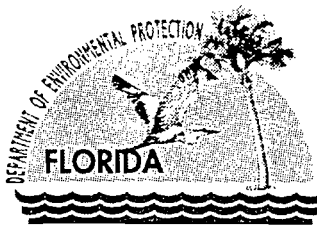
Action Taken to Correct Excess Emissions: Repaired bottom ash chain and tube leak.

Palm Beach County Health Department - Air Pollution Control Section  
Day - (561) 355-3136    Nights and Weekends - (561) 582-5666    Fax - (561) 355-2442

Was Palm Beach County Notified: Yes X No        Person Notified: Ajaya K. Satyal

Date of Notification: 2/11/99 Time of Notification:        Faxed: Yes        No X

Reported By: James M. Meriwether



Jeb Bush  
Governor

# Department of Environmental Protection

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

David B. Struhs  
Secretary

February 5, 1999

Mr. John Bunyak, Chief  
Policy, Planning & Permit Review Section  
NPS-Air Quality Division  
Post Office Box 25287  
Denver, Colorado 80225

Re: Okeelanta Power, LP, 0990332-010-AC, PSD-FL-<sup>196F</sup>~~262~~  
Permit Modification of CO Emission Limit

Dear Mr. Bunyak:

Enclosed for your review and comment is a request from Okeelanta Power, LP, for an air construction permit modification to relax the CO emission limit for their cogeneration facility from 0.35 lb/MMBtu to 0.50 lb/MMBtu (daily average) on the basis of variability of moisture in the biomass fuel.

Please send your comments to me at the letterhead address or fax them to my attention at (850)922-6979. If you have any questions, please contact John Reynolds at (850)921-9536.

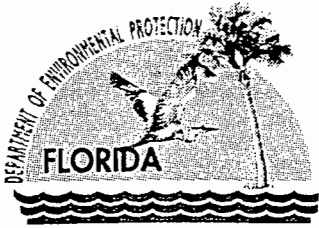
Sincerely,

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

AAL/kt

enclosures

cc: J. Reynolds, BAR



Jeb Bush  
Governor

# Department of Environmental Protection

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

David B. Struhs  
Secretary

February 5, 1999

Mr. Gregg Worley, Section Chief  
Air, Radiation Technology Branch  
Preconstruction/HAP Section  
U.S. EPA - Region IV  
61 Forsyth Street  
Atlanta, Georgia 30303

Re: Okeelanta Power, L.P., 0990332-010-AC, PSD-FDL-<sup>196 F</sup>~~282~~  
Permit Modification of CO Emission Limit

Dear Mr. Worley:

Enclosed for your review and comment is a request from Okeelanta Power, L.P., for an air construction permit modification to relax the CO emission limit for their cogen facility from 0.35 lb/MMBtu to 0.50 lb/MMBtu (daily average) on the basis of variability of moisture in the biomass fuel.

Please send your comments to me at the letterhead address or fax them to my attention at (850)922-6979. If you have any questions, please contact John Reynolds at (850)921-9536.

Sincerely,

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

AAL/kt

enclosures

cc: J. Reynolds, BAR

**RECEIVED**

**OKEELANTA COGENERATION FACILITY  
P.O. Box 9  
South Bay, Florida 33493  
(561) 993-1010  
(561) 992-7744 (fax)**

**FFR 02 1999**

**BUREAU OF  
AIR REGULATION**

January 29, 1999

State of Florida  
Department of Environmental Protection  
Division of Air Resources Management  
Twin Towers Office Building  
2600 Blair Stone Road, MS #5505  
Tallahassee, Florida 32399-2400

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

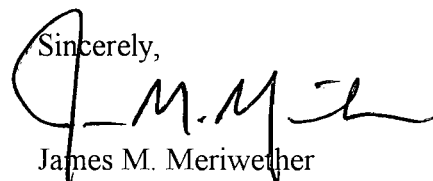
Re: Okeelanta Power L.P. *010*  
AIRS No: 0990332-006-AC, PSD-FL-106 *262*

*196F*

Dear Mr. Linero:

Please find enclosed check #8282 in the amount of \$2500 to cover the additional permit modification processing fee requested in your December 18, 1998 letter to David Buff of Golder Associates. Although it is not clear that PSD review is applicable in this case we wish to proceed with processing of the permit modification. If you have any questions please contact me at (561) 993-1003.

Sincerely,



James M. Meriwether  
Environmental Manager

cc: Ricardo Lima  
Rodney Williams

FLORIDA CRYSTALS CORPORATION  
316 ROYAL POINCIANA PLAZA  
PALM BEACH, FLORIDA 33480-4099

FIRST UNION

First Union National  
of Florida  
PENSACOLA, FL 32634

63-1012  
632

NO. 008282

DATE 01/28/99

8282

AMOUNT  
\$ \*\*\*\*\*2500.00

PAY

TWO THOUSAND FIVE HUNDRED AND 00/100

*Over Allotment*  
*Est 7/8/90*  
DOLLARS

TO  
THE  
ORDER  
OF

THE DEPARTMENT OF  
ENVIRONMENTAL PROTECTION  
SOUTH DISTRICT  
2295 VICTORIA AVENUE  
FORT MEYERS FL 33902-2549





January 4, 1999

**RECEIVED**

**JAN 08 1999**

**BUREAU OF  
AIR REGULATION**

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

**Re: Comments on Requested CO Emission Limit Modification Dated 12-14-98  
Okeelanta Power Limited Partnership (OkPLP) Cogeneration Facility  
Permit No. 099-0332-006-AC (PSD-FL-196)**

Dear Mr. Linero:

Recently, the OkPLP submitted a request to increase the CO emissions limit for the cogeneration boilers from 0.35 lb/mmBTU based on a 24-hour average to 0.50 lb/mmBTU based on a 30-day rolling average. The Health Department offers the following comments on this request:

1. The CO emissions limit was already revised in 1997 from 0.35 lb/mmBTU based on an 8-hour average to 0.35 lb/mmBTU based on a 24-hour average. The Health Department resisted this modification believing that the CO standard was originally included in the permit as a parameter representing combustion efficiency and therefore "good combustion practices". We maintained that increasing the standard to a 24-hour basis weakened the effectiveness of using CO as a measure of "good combustion". The original application clearly indicated that these "state-of-the-art" boilers would have little problem meeting the initial emissions limit. Increasing both the numerical limit and the averaging time will further dilute any remaining meaning to the CO standard.
2. OkPLP states that the modification is necessary because of "uncontrollable moisture feed". The Health Department concedes that high moisture in the biomass feed material may contribute to fluctuating, higher CO emissions. However, this was a well known fact going into this project. It rains in Florida and it certainly rains in western Palm Beach County. This resulting problem with fuel combustion has been known to the sugar mill operators for at least 50 years. Also, the Health Department does not concede that the moisture content is "uncontrollable". We do agree that there has been no effort on behalf of OkPLP to produce a conditioned, dry fuel.
3. OkPLP states that BACT for a similar facility constructed at about the same time was set at 0.32 lb/mmBTU based on a 24-hour average. Given this information, the Health Department fails to understand the request to increase OkPLP's numerical portion of the limit from 0.35 lb/mmBTU to 0.50 lb/mmBTU. Although the CO standard for OkPLP was not established through a BACT determination, it seems reasonable to expect similar emission rates for similar sized equipment burning biomass and utilizing "good combustion practices" to minimize emissions. The requested increase is more than 50% above the emission limit for the similar BACT facility.
4. As supporting information to increase the CO limit, OkPLP provides CEM data from 2-27-98 to 10-22-98 clearly indicating problems with meeting the current CO standard. The Health Department has the following questions regarding this data:
  - Were "good combustion practices" used to control CO emissions during this period?
  - Did other equipment problems lead to higher CO emissions?
  - Did OkPLP investigate other methods to control CO emissions?
  - Did OkPLP attempt to condition and dry portions of the biomass for blending with high moisture biomass during wet periods?
  - Would burning a small amount of fuel oil help control CO deviations when burning "wet" biomass?
  - OkPLP has CEM records for CO emissions for the period of operation prior to 2-27-98. Why weren't these records included in the analysis?

- If compliance with the 0.35 lb CO/mmBTU limit is a problem strictly related to high moisture fuel, why didn't OkPLP make this request back in 1997?
  - Could the high CO emissions be a result of a steady decline in the performance of the boiler and other related equipment?
5. OkPLP's rationale for selecting 0.50 lb/mmBTU as the new limit is to provide a "greater margin of safety". The data provided indicates that the facility would be able to comply with 30-day rolling average of 0.35 lb CO/mmBTU. So, the term "safety" must mean safety from an enforcement action.
  6. The cogeneration plants originally showed a net decrease in all emissions because the new boilers were so efficient and the old mill boilers would be shut down. Please remember that DEP has granted OkPLP several extensions of the deadline to shut down the old mill boilers. The cogeneration plants are now able to operate simultaneously with the mill boilers through the year 2000.
  7. OkPLP cites Rule 62-212.500(2)(d)5., F.A.C., Relaxation of Restrictions on Pollutant Emitting Capacity, as the authority to increase the CO limit without triggering PSD. The Health Department believes this interpretation to be incorrect. It seems that allowing this emissions limit increase without a PSD review circumvents the BACT program and suggests that limits in federally enforceable permits are simply adjusted if a facility has difficulty meeting design specifications. The Health Department requests that DEP interpret this rule with regard to the proposed modification.
  8. OkPLP requests that the permitted conditions regarding excess emissions be expanded. This change would affect all emissions standards. The Health Department believes the conditions regarding excess emissions should not be expanded, but instead deleted. It is our understanding that Florida does not have the authority to "allow" emissions in excess of a standard resulting from a federally delegated program. Because the emission limiting standards were established in a PSD permit, emissions in excess of a standard should only be permitted if specifically allowed under the PSD program (or NSPS if resulting from an NSPS standard).

There have been many problems with the cogeneration plants including boilers not performing to design specifications, biomass fuel feeding problems, malfunctioning control equipment, and premature equipment failure. For example, the plates in the Electrostatic Precipitators (ESPs) have warped and become fouled. They are not providing the control efficiency that was originally built into the design. These plates were supposed to last the life of the boilers. The Health Department has witnessed a steady decline in the performance and operation of this cogeneration plant. The requested modifications appear questionable.

Sincerely,

For the Division Director  
Environmental Health and Engineering



Jeffery F. Koerner, PE  
Air Pollution Control Section

Phone: (561) 355-~~4549~~  
3136 FAX: (561) 355-2442

cc: J. Reynolds, BAR

Filename: CO\_OkPLP.DOC





# Department of Environmental Protection

Lawton Chiles  
Governor

Virginia B. Wetherell  
Secretary

December 18, 1998

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. David A. Buff, P.E.  
Golder Associates, Inc.  
6241 Northwest 23rd Street, Suite 500  
Gainesville, Florida 32653-1500

Re: Okeelanta Power, L.P. - AIRS No. 0990332-<sup>010</sup>~~006~~-AC, PSD-FL-<sup>262</sup>~~196~~

Dear Mr. Buff:

0990332-010-AC

The Bureau of Air Regulation received your request for a modification to an air construction permit for the above-referenced facility. On the basis of relaxation of a permit limit that would result in a significant emissions increase when current actuals are compared to future allowable emissions, it appears that PSD review will apply. Therefore, before we can begin processing your request, an additional processing fee of \$2500 is required pursuant to Rule 62-4.050(4)(a)2.a., F.A.C.

If you have any questions regarding this letter, please call John Reynolds at (850)921-9536 .

Sincerely,

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

AAL/kt

cc: J. Reynolds, BAR

Z 333 612 574

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

PS Form 3800, April 1995

|   |    |
|---|----|
| Sent to<br><i>David Buff</i>  |    |
| Street & Number<br><i>Golder</i>  |    |
| Post Office, State, & ZIP Code<br><i>Gainesville FL</i>                     |    |
| 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<br><i>12-18-98</i><br><i>0990332-006</i><br><i>PSD-196</i> |    |

Is your RETURN ADDRESS completed on the reverse side?

**SENDER:**

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- 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):

- Addressee's Address
- Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:  
*MR. David A. Buff P.E.*  
*Golder Assoc.*  
*6241 NW 23 St. Suite 500*  
*Gainesville, FL 32653-1500*

4a. Article Number  
*2333 612 574*

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

7. Date of Delivery  
*12/23/98*

5. Received By: (Print Name)  
*[Signature]*

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

6. Signature: (Addressee or Agent)  
*X Mike Pennel*

Thank you for using Return Receipt Service.

**Golder Associates Inc.**

6241 NW 23rd Street, Suite 500  
Gainesville, FL 32653-1500  
Telephone (352) 336-5600  
Fax (352) 336-6603

**RECEIVED**

DEC 15 1998

**BUREAU OF  
AIR REGULATION**



9837564A/01

December 14, 1998

Bureau of Air Regulation  
Florida Department of Environmental Protection  
2600 Blair Stone Road  
Tallahassee, FL 32399-2400

Attention: Mr. A.A. Linero, P.E., Administrator, New Source Review Section

RE: Permit No. 0990332-006-AC (PSD-FL-196) <sup>010</sup> 262 196 F  
Okeelanta Power Limited Partnership (OkPLP) Cogeneration Facility  
Permit Modification of CO Emission Limit

Dear Mr. Linero:

OkPLP received a modification to its air construction permit in 1997 which approved, among other provisions, a change in the averaging time associated with the carbon monoxide (CO) emission limit for the three boilers located at the facility. The CO emission limit was revised from 0.35 lb/MMBtu based on an 8-hour average, to 0.35 lb/MMBtu based on a 24-hour averaging time.

Since obtaining this permit revision in October 1997, additional operating data has been obtained from the OkPLP facility boilers. The facility was under an extended shutdown prior to February 27, 1998, at which time boiler operations re-commenced. CO data taken from the continuous monitors on the three boilers (Boilers A, B and C) for the period February 27 through October 22, 1998, are attached as Appendix A. Shown in the tables is each 24-hour average CO emission rate for each day in which the boiler operated 18 hours or more. Also shown is the calculated 30-day rolling average. During the period February 27 through April 2, bagasse was the only biomass fired in the boilers. From April 2 through October 22, biomass consisting of a combination of wood waste and bagasse was fired in the boilers.

Based on the additional operational data and continuous CO emissions data from the OkPLP facility boilers, OkPLP is requesting a revised CO emission limit for all fuels of 0.5 lb/MMBtu based on a 30-day rolling average.

The requested CO limit for OkPLP is consistent with the basis and format of the CO standard for Wheelabrator Ridge Energy (AC53-206244; PSD-FL-183A), which is the only known permitted waste wood/TDF-fired facility in the state (other than OkPLP and Osceola Power). The Ridge Energy facility, since it burns primarily biomass, operates in a similar manner to OkPLP, and fuel variability is an issue.

The Ridge Energy BACT limit for CO emissions was set at approximately 0.32 lb/MMBtu (200 lb/hr @ approx. 630 MMBtu/hr). The BACT determination stated, in regards to the actual CO test data, that a "Wide variation in CO emissions occurred but this was expected due to the nature of the feed." The Department goes on to state that "The Department believes that the final BACT emission limits should be based on the highest of the above CEMS data plus a margin for compliance.... On the basis of the data recorded through December 31, 1995, the permittee requested and was granted a greater margin for compliance in the case of CO emissions, since higher CO is tied to the uncontrollable moisture content of the wood fired." This is the same form of relief that OkPLP is now requesting, due to the same inherent characteristics of the biomass fuel burned at OkPLP.

As shown in the attached listing of daily average CO emissions from OkPLP, 24-hour average CO emissions have ranged as high as 1.21 lb/MMBtu, and the 30-day rolling average has ranged as high as 0.35 lb/MMBtu. The 95 percent confidence level emission rate for 24-hour averaging time is calculated to range from 0.48 to 0.56 lb/MMBtu, depending on the specific boiler. In order to provide a "greater margin of safety", the 0.5 lb/MMBtu requested limit on a 30-day rolling average is reasonable.

The 30-day rolling average format of the CO standard is consistent with the format of the CO standard for the Ridge Energy facility. The 30-day rolling average standard was issued as a best available control technology (BACT) determination for the Ridge Energy facility. This BACT determination stated that "In establishing initial limits based on 24-hour averages, the Department did not know that the fluctuation in emissions would be great enough to justify long-term averages in setting final limits." Such is the case with the OkPLP facility as well, as demonstrated by the continuous emissions monitor data.

Based on the daily CO emissions data and resulting 30-day rolling averages provided in Attachment A, a 0.5 lb/MMBtu CO limit based on a 30-day rolling average would not have been exceeded since the facility restarted operations in February 1998 (highest 30-day rolling average of 0.346 lb/MMBtu for Boiler "B" on 07/22/98). OkPLP is requesting an increased CO limit of 0.5 lb/MMBtu on a 30-day rolling average in order to insure future compliance at all times under all operating conditions.

Based on F.A.C. Rule 62-212.500(2)(d)5, Relaxations of Restrictions on Pollutant Emitting Capacity, if a relaxation in a federally enforceable limitation on capacity of the facility to emit a pollutant occurs at a previously permitted facility, prevention of significant (PSD) new source review applicability is determined as if though construction had not yet commenced on the facility. In other words, the original PSD baseline emissions of the facility are used to determine if the present request would trigger PSD new source review requirements.

The original PSD baseline CO emissions for the OkPLP facility are 10,388 TPY. The baseline CO emissions represent emissions from the existing Okeelanta sugar mill bagasse-fired boilers. The baseline emissions were established using actual stack test data and operating data from the Okeelanta sugar mill for the period 1991-1992. At a revised CO emission limit of 0.5 lb/MMBtu, the future maximum annual CO emissions from the OkPLP facility would be 2,875 TPY ( $11.5E+12$  Btu/yr x 0.5 lb/MMBtu x ton/2000 lb). Therefore, the net change in CO emissions would be -7,513 TPY. As a result, PSD review would not apply to the proposed modification request.

An additional issue at OkPLP is the provisions in the current construction permit for excess emissions. In Specific Condition 20 of the current permit, excess emissions are allowed for up to four (4) hours, as long as such emissions in excess of two (2) hours do not exceed six (6) times per year. Operational history shows that these provisions are not adequate, both in terms of duration and frequency. Suggested wording for SC 20 to resolve this issue is presented below:

"Visible emissions from any boiler.....

...,stack emissions shall not exceed any limit shown in the following table:

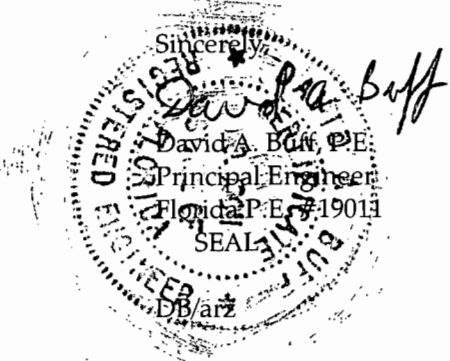
Emission Limit Table

Continuous emission monitoring data shall be collected and recorded during periods of startup, shutdown, on-line and malfunction, except during periods of CMS breakdowns, repairs, calibration checks, and zero and span adjustments [40 CFR 60.47a(e)]. Emissions during periods of startup, shutdown, off-line and malfunction shall be excluded from

averaging calculations, and from determinations of compliance with emission limits of this permit [40 CFR 60.46a(c)]. Periods of startup, shutdown, on-line, off-line and malfunction are defined below:

- Startup            The period beginning at 4,000 lbs/hr steam flow up to 150,000 lbs/hr steam flow, or six (6) hours, whichever occurs first.
- Shutdown        The period beginning at 150,000 lbs/hr steam flow down to 4,000 lbs/hr steam flow, or six (6) hours, whichever occurs first.
- Off-Line         Operating at less than 4,000 lbs/hr steam flow.
- On-Line         Operating at greater than 150,000 lbs/hr steam flow.
- Malfunction     The duration of malfunctions shall not exceed three (3) hours per occurrence.

By this letter OkPLP requests modification of permit 0990332-006-AC (PSD-FL-196). Attached is a permit modification fee of \$5,000. Note that a construction permit application form is not attached, since the only item that is different from the previous application for this facility is the CO emission limit. Please call if you have any questions concerning this information. We look forward to your response concerning this request.



- cc: James Meriwether  
Ajaya Satyal, PBCHU  
David Knowles, FDEP  
David Dee, Landers & Parsons

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cc: EPA  
NPS  
palm Bch Co  
S. District  
J. Reynolds, BAR  
C. Helladay, BAR

**APPENDIX A**

| Date | Boiler "A"                    |                              | Boiler "B"                    |                              | Boiler "C"                    |                              |
|------|-------------------------------|------------------------------|-------------------------------|------------------------------|-------------------------------|------------------------------|
|      | 24-hour average<br>(lb/MMBtu) | 30-day average<br>(lb/MMBtu) | 24-hour average<br>(lb/MMBtu) | 30-day average<br>(lb/MMBtu) | 24-hour average<br>(lb/MMBtu) | 30-day average<br>(lb/MMBtu) |
| 2/27 | 0.695                         |                              |                               |                              |                               |                              |
| 3/2  | 0.141                         |                              |                               |                              |                               |                              |
| 3/3  | 0.065                         |                              |                               |                              |                               |                              |
| 3/4  | 0.195                         |                              |                               |                              | 0.412                         |                              |
| 3/5  | 0.050                         |                              |                               |                              | 0.051                         |                              |
| 3/6  | 0.152                         |                              |                               |                              | 0.052                         |                              |
| 3/7  | 0.153                         |                              |                               |                              | 0.218                         |                              |
| 3/8  | 0.148                         |                              |                               |                              | 0.248                         |                              |
| 3/9  |                               |                              | 0.605                         |                              |                               |                              |
| 3/10 | 0.147                         |                              |                               |                              |                               |                              |
| 3/11 | 0.114                         |                              | 0.386                         |                              | 0.120                         |                              |
| 3/12 | 0.113                         |                              | 0.143                         |                              | 0.187                         |                              |
| 3/13 | 0.104                         |                              | 0.122                         |                              | 0.148                         |                              |
| 3/14 | 0.109                         |                              | 0.187                         |                              | 0.143                         |                              |
| 3/15 | 0.100                         |                              | 0.130                         |                              | 0.117                         |                              |
| 3/16 | 0.078                         |                              | 0.181                         |                              | 0.127                         |                              |
| 3/17 | 0.100                         |                              | 0.196                         |                              | 0.117                         |                              |
| 3/18 | 0.161                         |                              | 0.313                         |                              | 0.187                         |                              |
| 3/19 | 0.160                         |                              |                               |                              | 0.255                         |                              |
| 3/20 |                               |                              |                               |                              |                               |                              |
| 3/21 |                               |                              |                               |                              |                               |                              |
| 3/22 |                               |                              |                               |                              |                               |                              |
| 3/23 |                               |                              |                               |                              |                               |                              |
| 3/24 |                               |                              |                               |                              |                               |                              |
| 3/25 |                               |                              |                               |                              |                               |                              |
| 3/26 | 0.210                         |                              |                               |                              | 0.229                         |                              |
| 3/27 | 0.157                         |                              | 0.333                         |                              | 0.143                         |                              |
| 3/28 | 0.235                         |                              | 0.323                         |                              | 0.257                         |                              |
| 3/29 | 0.183                         |                              | 0.217                         |                              | 0.183                         |                              |
| 3/30 | 0.174                         |                              | 0.278                         |                              | 0.268                         |                              |
| 3/31 | 0.083                         |                              | 0.113                         |                              |                               |                              |
| 4/1  | 0.013                         |                              | 0.021                         |                              |                               |                              |
| 4/2  | 0.040                         |                              | 0.070                         |                              | 0.101                         |                              |
| 4/3  | 0.068                         |                              | 0.130                         |                              | 0.140                         |                              |
| 4/4  | 0.048                         |                              | 0.152                         |                              | 0.135                         |                              |
| 4/5  | 0.125                         |                              | 0.157                         |                              | 0.068                         |                              |
| 4/6  | 0.057                         | 0.139                        | 0.104                         |                              | 0.073                         |                              |
| 4/7  | 0.087                         | 0.119                        |                               |                              | 0.145                         |                              |
| 4/8  | 0.130                         | 0.118                        |                               |                              | 0.182                         |                              |
| 4/9  | 0.241                         | 0.124                        |                               |                              | 0.300                         |                              |
| 4/10 | 0.248                         | 0.126                        |                               |                              | 0.257                         |                              |
| 4/11 | 0.217                         | 0.131                        |                               |                              | 0.209                         |                              |
| 4/12 | 0.187                         | 0.133                        |                               |                              | 0.187                         | 0.175                        |
| 4/13 | 0.191                         | 0.134                        |                               |                              | 0.174                         | 0.171                        |
| 4/14 | 0.298                         | 0.139                        |                               |                              | 0.276                         | 0.178                        |
| 4/15 | 0.307                         | 0.144                        |                               |                              | 0.289                         | 0.181                        |
| 4/16 | 0.228                         | 0.148                        |                               |                              | 0.252                         | 0.181                        |
| 4/17 | 0.268                         | 0.153                        |                               |                              | 0.252                         | 0.185                        |
| 4/18 | 0.230                         | 0.157                        |                               |                              | 0.365                         | 0.191                        |
| 4/19 | 0.322                         | 0.164                        |                               |                              | 0.326                         | 0.197                        |
| 4/20 | 0.349                         | 0.173                        |                               |                              | 0.315                         | 0.203                        |
| 4/21 | 0.278                         | 0.179                        |                               |                              | 0.274                         | 0.208                        |
| 4/22 | 0.294                         | 0.186                        |                               |                              | 0.255                         | 0.212                        |
| 4/23 | 0.255                         | 0.189                        |                               |                              | 0.144                         | 0.211                        |
| 4/24 | 0.230                         | 0.191                        |                               |                              | 0.275                         | 0.217                        |
| 4/25 | 0.157                         | 0.190                        |                               |                              |                               |                              |
| 4/26 | 0.196                         | 0.191                        | 0.297                         |                              |                               |                              |
| 4/27 | 0.300                         | 0.193                        | 0.339                         |                              |                               |                              |
| 4/28 | 0.204                         | 0.194                        | 0.183                         |                              |                               |                              |
| 4/29 |                               |                              | 0.313                         |                              |                               |                              |
| 4/30 | 0.248                         | 0.196                        | 0.287                         |                              |                               |                              |
| 5/1  | 0.469                         | 0.209                        | 0.508                         |                              |                               |                              |
| 5/2  |                               |                              | 0.397                         |                              |                               |                              |
| 5/3  |                               |                              | 0.343                         |                              | 0.225                         | 0.218                        |
| 5/4  |                               |                              | 0.343                         |                              | 0.183                         | 0.216                        |
| 5/5  |                               |                              | 0.591                         | 0.258                        | 0.322                         | 0.219                        |
| 5/6  |                               |                              | 0.626                         | 0.259                        | 0.378                         | 0.227                        |
| 5/7  |                               |                              | 0.396                         | 0.259                        | 0.430                         | 0.232                        |
| 5/8  |                               |                              | 0.387                         | 0.267                        | 0.226                         | 0.234                        |
| 5/9  |                               |                              | 0.422                         | 0.277                        | 0.265                         | 0.234                        |
| 5/10 |                               |                              | 0.513                         | 0.288                        | 0.383                         | 0.243                        |
| 5/11 |                               |                              | 0.587                         | 0.304                        | 0.443                         | 0.253                        |
| 5/12 |                               |                              | 0.157                         | 0.303                        | 0.235                         | 0.256                        |
| 5/13 |                               |                              |                               |                              | 0.143                         | 0.259                        |
| 5/14 | 0.132                         | 0.213                        |                               |                              | 0.143                         | 0.261                        |
| 5/15 | 0.118                         | 0.216                        |                               |                              | 0.148                         | 0.261                        |
| 5/16 | 0.109                         | 0.217                        |                               |                              | 0.170                         | 0.261                        |
| 5/17 | 0.196                         | 0.222                        |                               |                              | 0.261                         | 0.260                        |
| 5/18 | 0.283                         | 0.227                        |                               |                              | 0.191                         | 0.257                        |
| 5/19 | 0.161                         | 0.231                        |                               |                              | 0.155                         | 0.256                        |
| 5/20 | 0.130                         | 0.232                        |                               |                              | 0.248                         | 0.258                        |
| 5/21 | 0.135                         | 0.232                        |                               |                              | 0.243                         | 0.260                        |

| Date | Boiler "A"                    |                              | Boiler "B"                    |                              | Boiler "C"                    |                              |
|------|-------------------------------|------------------------------|-------------------------------|------------------------------|-------------------------------|------------------------------|
|      | 24-hour average<br>(lb/MMBtu) | 30-day average<br>(lb/MMBtu) | 24-hour average<br>(lb/MMBtu) | 30-day average<br>(lb/MMBtu) | 24-hour average<br>(lb/MMBtu) | 30-day average<br>(lb/MMBtu) |
| 5/22 | 0.104                         | 0.228                        |                               |                              | 0.224                         | 0.258                        |
| 5/23 | 0.239                         | 0.227                        |                               |                              | 0.191                         | 0.255                        |
| 5/24 | 0.304                         | 0.230                        |                               |                              | 0.149                         | 0.252                        |
| 5/25 | 0.087                         | 0.227                        |                               |                              | 0.164                         | 0.249                        |
| 5/26 |                               |                              |                               |                              |                               |                              |
| 5/27 |                               |                              |                               |                              |                               |                              |
| 5/28 | 0.344                         | 0.232                        |                               |                              | 0.289                         | 0.246                        |
| 5/29 | 0.235                         | 0.230                        |                               |                              | 0.224                         | 0.243                        |
| 5/30 | 0.172                         | 0.225                        |                               |                              | 0.210                         | 0.239                        |
| 5/31 | 0.119                         | 0.222                        |                               |                              | 0.152                         | 0.235                        |
| 6/1  | 0.422                         | 0.227                        |                               |                              | 0.356                         | 0.239                        |
| 6/2  | 0.397                         | 0.232                        |                               |                              | 0.427                         | 0.248                        |
| 6/3  | 0.596                         | 0.242                        |                               |                              | 0.592                         | 0.259                        |
| 6/4  | 0.768                         | 0.256                        |                               |                              | 0.642                         | 0.272                        |
| 6/5  | 0.976                         | 0.279                        |                               |                              | 0.667                         | 0.289                        |
| 6/6  | 0.105                         | 0.273                        |                               |                              | 0.189                         | 0.284                        |
| 6/7  | 0.250                         | 0.272                        |                               |                              | 0.230                         | 0.279                        |
| 6/8  | 0.274                         | 0.274                        |                               |                              | 0.206                         | 0.272                        |
| 6/9  | 0.099                         | 0.272                        |                               |                              | 0.218                         | 0.271                        |
| 6/10 | 0.309                         | 0.276                        |                               |                              | 0.279                         | 0.272                        |
| 6/11 | 0.530                         | 0.283                        |                               |                              | 0.373                         | 0.272                        |
| 6/12 | 0.184                         | 0.283                        |                               |                              | 0.123                         | 0.261                        |
| 6/13 | 0.166                         | 0.280                        |                               |                              | 0.201                         | 0.260                        |
| 6/14 | 0.157                         | 0.270                        |                               |                              | 0.185                         | 0.261                        |
| 6/15 | 0.453                         | 0.280                        |                               |                              | 0.329                         | 0.267                        |
| 6/16 | 0.151                         | 0.281                        |                               |                              | 0.231                         | 0.270                        |
| 6/17 | 0.356                         | 0.290                        |                               |                              | 0.489                         | 0.281                        |
| 6/18 | 0.134                         | 0.288                        |                               |                              | 0.096                         | 0.275                        |
| 6/19 | 0.262                         | 0.287                        |                               |                              | 0.136                         | 0.273                        |
| 6/20 | 0.263                         | 0.290                        |                               |                              | 0.286                         | 0.278                        |
| 6/21 | 0.213                         | 0.293                        |                               |                              | 0.193                         | 0.276                        |
| 6/22 | 0.244                         | 0.297                        |                               |                              | 0.240                         | 0.276                        |
| 6/23 | 0.141                         | 0.298                        |                               |                              | 0.178                         | 0.274                        |
| 6/24 | 0.141                         | 0.295                        |                               |                              | 0.208                         | 0.275                        |
| 6/25 | 0.122                         | 0.289                        |                               |                              | 0.217                         | 0.277                        |
| 6/26 | 0.234                         | 0.293                        |                               |                              | 0.270                         | 0.281                        |
| 6/27 | 0.364                         | 0.294                        |                               |                              | 0.309                         | 0.281                        |
| 6/28 | 0.361                         | 0.298                        |                               |                              | 0.720                         | 0.298                        |
| 6/29 | 0.274                         | 0.302                        |                               |                              | 0.374                         | 0.302                        |
| 6/30 | 0.200                         | 0.304                        | 0.252                         | 0.305                        | 0.196                         | 0.304                        |
| 7/1  | 0.122                         | 0.294                        |                               |                              | 0.157                         | 0.297                        |
| 7/2  | 0.117                         | 0.285                        |                               |                              | 0.130                         | 0.287                        |
| 7/3  | 0.141                         | 0.270                        |                               |                              | 0.174                         | 0.273                        |
| 7/4  | 0.431                         | 0.259                        |                               |                              | 0.355                         | 0.264                        |
| 7/5  | 0.396                         | 0.239                        |                               |                              | 0.264                         | 0.250                        |
| 7/6  | 0.300                         | 0.246                        | 0.293                         | 0.304                        | 0.221                         | 0.252                        |
| 7/7  |                               |                              | 0.282                         | 0.302                        | 0.248                         | 0.252                        |
| 7/8  |                               |                              |                               |                              | 0.187                         | 0.252                        |
| 7/9  |                               |                              |                               |                              | 0.098                         | 0.248                        |
| 7/10 |                               |                              |                               |                              |                               |                              |
| 7/11 |                               |                              |                               |                              |                               |                              |
| 7/12 |                               |                              |                               |                              |                               |                              |
| 7/13 |                               |                              | 0.348                         | 0.303                        | 0.229                         | 0.246                        |
| 7/14 |                               |                              | 0.309                         | 0.306                        | 0.281                         | 0.243                        |
| 7/15 |                               |                              | 0.261                         | 0.306                        | 0.197                         | 0.245                        |
| 7/16 |                               |                              | 0.274                         | 0.311                        | 0.129                         | 0.243                        |
| 7/17 | 0.290                         | 0.247                        | 0.243                         | 0.318                        |                               |                              |
| 7/18 | 0.174                         | 0.244                        | 0.204                         | 0.323                        |                               |                              |
| 7/19 | 0.248                         | 0.249                        | 0.213                         | 0.326                        |                               |                              |
| 7/20 | 0.331                         | 0.250                        | 0.347                         | 0.332                        |                               |                              |
| 7/21 | 0.265                         | 0.241                        | 0.379                         | 0.339                        |                               |                              |
| 7/22 | 0.243                         | 0.243                        | 0.291                         | 0.346                        |                               |                              |
| 7/23 | 0.235                         | 0.243                        | 0.226                         | 0.343                        |                               |                              |
| 7/24 | 0.255                         | 0.248                        | 0.213                         | 0.339                        |                               |                              |
| 7/25 | 0.213                         | 0.240                        | 0.257                         | 0.342                        |                               |                              |
| 7/26 | 0.152                         | 0.240                        | 0.265                         | 0.340                        |                               |                              |
| 7/27 | 0.272                         | 0.237                        | 0.292                         | 0.340                        |                               |                              |
| 7/28 |                               |                              | 0.293                         | 0.333                        | 0.330                         | 0.248                        |
| 7/29 |                               |                              | 0.355                         | 0.332                        | 0.214                         | 0.244                        |
| 7/30 | 0.183                         | 0.239                        |                               |                              | 0.235                         | 0.244                        |
| 7/31 |                               |                              | 0.388                         | 0.331                        | 0.295                         | 0.238                        |
| 8/1  |                               |                              | 0.248                         | 0.328                        | 0.161                         | 0.240                        |
| 8/2  |                               |                              | 0.300                         | 0.319                        | 0.183                         | 0.241                        |
| 8/3  |                               |                              | 0.295                         | 0.308                        | 0.183                         | 0.238                        |
| 8/4  |                               |                              | 0.270                         | 0.303                        | 0.243                         | 0.239                        |
| 8/5  |                               |                              | 0.358                         | 0.302                        | 0.248                         | 0.240                        |
| 8/6  |                               |                              | 0.296                         | 0.298                        | 0.274                         | 0.243                        |
| 8/7  |                               |                              | 0.183                         | 0.287                        | 0.257                         | 0.245                        |
| 8/8  |                               |                              | 0.217                         | 0.275                        | 0.248                         | 0.246                        |
| 8/9  |                               |                              | 0.300                         | 0.280                        | 0.226                         | 0.244                        |
| 8/10 |                               |                              | 0.313                         | 0.282                        | 0.278                         | 0.243                        |
| 8/11 |                               |                              | 0.287                         | 0.281                        | 0.213                         | 0.226                        |
| 8/12 |                               |                              | 0.248                         | 0.280                        | 0.191                         | 0.221                        |
| 8/13 |                               |                              | 0.252                         | 0.277                        | 0.261                         | 0.223                        |



| Date                          | Boiler "A"                    |                              | Boiler "B"                    |                              | Boiler "C"                    |                              |
|-------------------------------|-------------------------------|------------------------------|-------------------------------|------------------------------|-------------------------------|------------------------------|
|                               | 24-hour average<br>(lb/MMBtu) | 30-day average<br>(lb/MMBtu) | 24-hour average<br>(lb/MMBtu) | 30-day average<br>(lb/MMBtu) | 24-hour average<br>(lb/MMBtu) | 30-day average<br>(lb/MMBtu) |
| 8/14                          |                               |                              | 0.313                         | 0.277                        | 0.291                         | 0.228                        |
| 8/15                          |                               |                              | 0.426                         | 0.283                        | 0.348                         | 0.235                        |
| 8/16                          |                               |                              | 0.465                         | 0.289                        | 0.435                         | 0.244                        |
| 8/17                          |                               |                              | 0.322                         | 0.292                        | 0.239                         | 0.240                        |
| 8/18                          |                               |                              | 0.217                         | 0.292                        | 0.204                         | 0.238                        |
| 8/19                          | 0.485                         | 0.247                        | 0.265                         | 0.294                        | 0.272                         | 0.239                        |
| 8/20                          | 0.284                         | 0.247                        | 0.230                         | 0.290                        |                               |                              |
| 8/21                          | 0.230                         | 0.248                        | 0.204                         | 0.284                        |                               |                              |
| 8/22                          | 0.296                         | 0.250                        | 0.265                         | 0.283                        |                               |                              |
| 8/23                          | 0.263                         | 0.254                        | 0.204                         | 0.283                        |                               |                              |
| 8/24                          | 0.357                         | 0.261                        | 0.304                         | 0.286                        |                               |                              |
| 8/25                          | 0.300                         | 0.267                        | 0.304                         | 0.288                        |                               |                              |
| 8/26                          | 0.150                         | 0.264                        | 0.248                         | 0.287                        |                               |                              |
| 8/27                          | 0.148                         | 0.257                        | 0.300                         | 0.287                        |                               |                              |
| 8/28                          | 0.173                         | 0.251                        | 0.274                         | 0.287                        |                               |                              |
| 8/29                          | 0.252                         | 0.250                        | 0.335                         | 0.286                        |                               |                              |
| 8/30                          | 0.226                         | 0.251                        | 0.296                         | 0.285                        |                               |                              |
| 8/31                          | 0.100                         | 0.250                        | 0.248                         | 0.285                        |                               |                              |
| 9/1                           | 0.250                         | 0.255                        | 0.209                         | 0.282                        |                               |                              |
| 9/2                           | 0.217                         | 0.257                        | 0.252                         | 0.280                        |                               |                              |
| 9/3                           | 0.287                         | 0.253                        | 0.170                         | 0.277                        |                               |                              |
| 9/4                           | 0.252                         | 0.248                        | 0.191                         | 0.271                        |                               |                              |
| 9/5                           | 0.274                         | 0.247                        | 0.148                         | 0.266                        |                               |                              |
| 9/6                           | 0.304                         | 0.247                        | 0.148                         | 0.265                        |                               |                              |
| 9/7                           | 0.270                         | 0.251                        | 0.178                         | 0.264                        |                               |                              |
| 9/8                           | 0.204                         | 0.249                        | 0.261                         | 0.263                        |                               |                              |
| 9/9                           | 0.226                         | 0.246                        | 0.243                         | 0.260                        |                               |                              |
| 9/10                          | 0.243                         | 0.245                        | 0.226                         | 0.258                        |                               |                              |
| 9/11                          | 0.217                         | 0.244                        | 0.222                         | 0.257                        |                               |                              |
| 9/12                          | 0.236                         | 0.244                        | 0.257                         | 0.258                        |                               |                              |
| 9/13                          | 0.300                         | 0.245                        | 0.209                         | 0.254                        |                               |                              |
| 9/14                          | 0.278                         | 0.248                        | 0.212                         | 0.247                        |                               |                              |
| 9/15                          | 0.213                         | 0.250                        | 0.240                         | 0.239                        |                               |                              |
| 9/16                          | 0.239                         | 0.249                        | 0.230                         | 0.236                        |                               |                              |
| 9/17                          | 0.274                         | 0.252                        | 0.248                         | 0.237                        |                               |                              |
| 9/18                          | 0.283                         | 0.245                        | 0.187                         | 0.235                        |                               |                              |
| 9/19                          | 0.296                         | 0.245                        | 0.287                         | 0.237                        |                               |                              |
| 9/20                          | 0.300                         | 0.248                        | 0.383                         | 0.243                        |                               |                              |
| 9/21                          | 0.248                         | 0.246                        |                               |                              |                               |                              |
| 9/22                          | 0.252                         | 0.246                        |                               |                              |                               |                              |
| 9/23                          | 0.504                         | 0.251                        |                               |                              |                               |                              |
| 9/24                          |                               |                              |                               |                              |                               |                              |
| 9/25                          |                               |                              |                               |                              |                               |                              |
| 9/26                          |                               |                              |                               |                              |                               |                              |
| 9/27                          | 0.705                         | 0.264                        |                               |                              |                               |                              |
| 9/28                          | 0.296                         | 0.269                        |                               |                              | 0.332                         | 0.233                        |
| 9/29                          | 0.248                         | 0.272                        |                               |                              | 0.614                         | 0.254                        |
| 9/30                          | 0.188                         | 0.273                        |                               |                              | 0.423                         | 0.268                        |
| 10/1                          | 0.248                         | 0.273                        |                               |                              | 0.300                         | 0.270                        |
| 10/2                          | 0.796                         | 0.292                        |                               |                              |                               |                              |
| 10/3                          | 1.209                         | 0.329                        |                               |                              |                               |                              |
| 10/4                          |                               |                              |                               |                              |                               |                              |
| 10/5                          |                               |                              |                               |                              |                               |                              |
| 10/6                          |                               |                              |                               |                              |                               |                              |
| 10/7                          |                               |                              |                               |                              |                               |                              |
| 10/8                          |                               |                              | 0.398                         | 0.247                        |                               |                              |
| 10/9                          |                               |                              | 0.335                         | 0.251                        |                               |                              |
| 10/10                         |                               |                              | 0.343                         | 0.253                        |                               |                              |
| 10/11                         |                               |                              | 0.378                         | 0.255                        |                               |                              |
| 10/12                         |                               |                              | 0.326                         | 0.258                        |                               |                              |
| 10/13                         |                               |                              | 0.263                         | 0.257                        |                               |                              |
| 10/14                         | 0.239                         | 0.328                        |                               |                              |                               |                              |
| 10/15                         | 0.212                         | 0.328                        | 0.256                         | 0.256                        |                               |                              |
| 10/16                         |                               |                              | 0.273                         | 0.254                        |                               |                              |
| 10/17                         | 0.155                         | 0.324                        | 0.232                         | 0.252                        |                               |                              |
| 10/18                         | 0.313                         | 0.326                        | 0.260                         | 0.252                        |                               |                              |
| 10/19                         | 0.224                         | 0.324                        | 0.268                         | 0.254                        |                               |                              |
| 10/20                         | 0.342                         | 0.325                        | 0.252                         | 0.254                        |                               |                              |
| 10/21                         | 0.235                         | 0.324                        | 0.226                         | 0.256                        |                               |                              |
| 10/22                         | 0.187                         | 0.324                        | 0.204                         | 0.256                        |                               |                              |
| No. of Values                 | 169                           | 140                          | 123                           | 94                           | 139                           | 110                          |
| Average                       | 0.246                         | 0.244                        | 0.278                         | 0.284                        | 0.246                         | 0.248                        |
| Maximum                       | 1.209                         | 0.329                        | 0.626                         | 0.346                        | 0.720                         | 0.304                        |
| Standard Dev.                 | 0.157                         |                              | 0.102                         |                              | 0.115                         |                              |
| Upper 95% Confidence Interval | 0.560                         |                              | 0.483                         |                              | 0.476                         |                              |

FLORIDA CRYSTALS CORPORATION  
316 ROYAL POINCIANA PLAZA  
PALM BEACH, FLORIDA 33480-4099

**FIRST UNION** First Union National  
of Florida  
PENSACOLA, FL 32634

63-1012  
632

NO. 007167

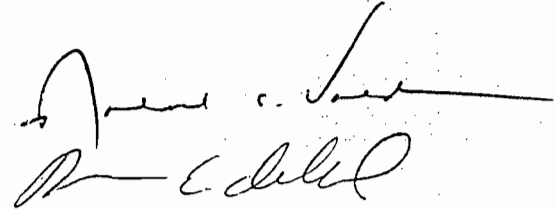
DATE 12/03/98

7167

AMOUNT  
\$ \*\*\*\*\*5000.00

PAY  
FIVE THOUSAND AND 00/100----- DOLLA

TO  
THE  
ORDER  
OF  
Florida Department of Environmental Protection  
STATE OF FLORIDA  
THE CAPITOL  
TALLAHASSEE  
FL 32399-0800



0990332-010-AC

FLORIDA CRYSTALS CORPORATION  
316 ROYAL POINCIANA PLAZA  
PALM BEACH, FLORIDA 33480-4099

**FIRST UNION** First Union National  
of Florida  
PENSACOLA, FL 32634

63-1012  
632

NO. 007167

DATE 12/03/98

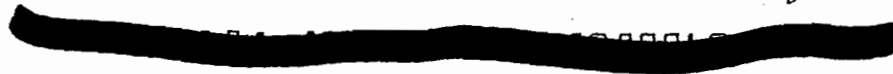
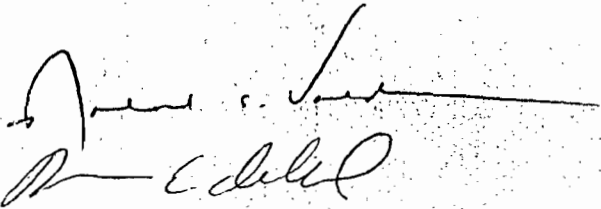
7167

AMOUNT  
\$ \*\*\*\*\*5000.00

PAY  
FIVE THOUSAND AND 00/100-----

DOLLARS

TO THE ORDER OF  
Florida Department of Environmental Protection  
STATE OF FLORIDA  
THE CAPITOL  
TALLAHASSEE FL 32399-0800



2 333 618 184

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

|   |    |
|---|----|
| Sent to   |    |
| James Meriwether  |    |
| Street & Number   |    |
| Keelanta Cosen  |    |
| Post Office (State, & ZIP Code)                             |    |
| South 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  |    |
| 0990332-010-AC 6-24-99                                      |    |
| PSD-FL-196F   |    |

PS Form 3800 April 1995

RETURN ADDRESS completed on the reverse side?

**SENDER:**

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- 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):

- Addressee's Address
- Restricted Delivery

Consult postmaster for fee.

**3. Article Addressed to:**

James Meriwether  
Keelanta Cosen Fac.  
P O Box 9  
South Bay, FL

33493

**4a. Article Number**

2 333 618 184

**4b. Service Type**

- |   |   |
|---|---|
| <input type="checkbox"/> Registered                     | <input checked="" type="checkbox"/> Certified |
| <input type="checkbox"/> Express Mail                   | <input type="checkbox"/> Insured              |
| <input type="checkbox"/> Return Receipt for Merchandise | <input type="checkbox"/> COD                  |

**7. Date of Delivery**

6-20-99

**5. Received By: (Print Name)**

**6. Signature: (Addressee or Agent)**

X *James Meriwether*

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

Using Return Receipt Service. Thank you

# THE PALM BEACH POST

Published Daily and Sunday  
West Palm Beach, Palm Beach County, Florida

## PROOF OF PUBLICATION

STATE OF FLORIDA  
COUNTY OF PALM BEACH

Before the undersigned authority personally appeared Linda M. Francis who on oath says that he/she is Classified Advertising Supervisor of The Palm Beach Post, a daily and Sunday newspaper published at West Palm Beach in Palm Beach County, Florida; that the attached copy of advertising, being Notice in the matter of Intent the --- Court, was published in said newspaper in the issues of May 19, 1999.

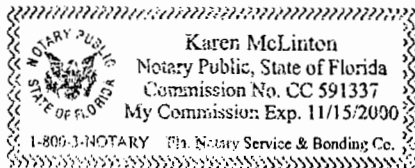
Affiant further says that the said The Post is a newspaper published at West Palm Beach, in said Palm Beach County, Florida, and that the said newspaper has heretofore been continuously published in said Palm Beach County, Florida, daily and Sunday and has been entered as second class mail matter at the post office in West Palm Beach, in said Palm Beach County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that he/she has neither paid nor promised any person, firm or corporation any discount rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.



Sworn to and subscribed before me this 19 day of May A.D. 1999.



Personally known XX or Produced Identification \_\_\_\_\_  
Type of Identification Produced \_\_\_\_\_



NO. 592450  
PUBLIC NOTICE OF INTENT  
TO ISSUE AIR CONSTRUCTION  
PERMIT MODIFICATION  
STATE OF FLORIDA  
DEPARTMENT  
OF ENVIRONMENTAL  
PROTECTION  
DRAFT Permit Modification  
No. 0990332-010-AC  
(PSD-FL-196F)

Okeelanta Power  
Limited Partnership  
Palm Beach County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit modification to Okeelanta Power Limited Partnership for the cogeneration plant located approximately six miles south of South Bay in Palm Beach County. A Best Available Control Technology (BACT) determination was not required for this modification pursuant to Rule 62-212.400, F.A.C. and 40 CFR 52.21, Prevention of Significant Deterioration (PSD). The modification will not result in an increase in allowable emissions from the cogeneration facility, and will not cause a violation of any state or federal ambient air quality standards or increments. The applicant's name and address are: Okeelanta Power Limited Partnership, P.O. Box 9, South Bay, FL 33493.

The modification will allow averaging of carbon monoxide emissions over a rolling 30-day averaging period instead of the former 24-hour averaging period as a result of the uncontrollable moisture content of the biomass fuel burned. The modification also defines process conditions for startup, shutdown and malfunction of the boilers and periods during which excess emissions may occur.

The Department will issue the final permit modification with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments and requests for public meetings concerning the proposed permit issuance action for a period of 30 (thirty) days from the date of publication of this Public Notice of Intent to Issue Air Construction Modification. Written comments and requests for public meetings should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit modification with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The

procedures for petitioning for a hearing are set forth below. Mediation is not available in this proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of

receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by rule 28-106.301.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

A complete project file is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Dept. of Environmental Protection  
Bureau of Air Regulation  
Suite 4, 111 S. Magnolia Drive  
Tallahassee, Florida, 32301  
Telephone: 850/488-0114.  
Fax: 850/922-6979

Division of Environmental Health and Engineering  
Palm Beach County Health Department  
901 Evernia Street  
West Palm Beach, Florida 33401  
Telephone: 561/355-3070

Dept. of Environmental Protection  
South District Office  
Suite 364,  
2295 Victoria Avenue  
Fort Myers, Florida  
33901-3381  
Telephone: 941/332-6975

Dept. of Environmental Protection  
Southeast District Office  
400 North Congress Avenue  
West Palm Beach, Florida 33401  
Telephone: 561/681-6600

The complete project file includes the application, Draft permit modification, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Administrator, New Source Review Section, or the Department's reviewing engineer for this project, John Reynolds, at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301; or call 850/488-0114, for additional information.

PUB: The Palm Beach Post  
May 19, 1999

Z 333 618 108

US Postal Service  
**Receipt for Certified Mail**

No Insurance Coverage Provided.

Do not use for International Mail (See reverse)

|   |         |
|---|---------|
| Sent to   |         |
| James Meriwether  |         |
| Street & Number   |         |
| Okeelanta Power   |         |
| Post Office, State, & ZIP Code                              |         |
| South 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  | 5-10-99 |
| 0990332-010-AC<br>050-FL-196F                               |         |

PS Form 3800 April 1995

is your RETURN ADDRESS completed on the reverse side?

**SENDER:**

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- 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):

- Addressee's Address
- Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

James Meriwether, E.M.  
Okeelanta Power Ltd  
PO Box 8  
South Bay, FL  
33493

4a. Article Number

Z 333 618 108

4b. Service Type

- Registered
- Express Mail
- Return Receipt for Merchandise
- Certified
- Insured
- COD

7. Date of Delivery

5-13-99

5. Received By: (Print Name)

K. Yerkes

6. Signature: (Addressee or Agent)

X K. Yerkes

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

Thank you for using Return Receipt Service.

Z 333 612 574

US Postal Service  
**Receipt for Certified Mail**

No Insurance Coverage Provided.  
Do not use for International Mail (See reverse)

|   |    |
|---|----|
| Sent to<br><i>David Buff</i>  |    |
| Street & Number<br><i>Golder</i>  |    |
| Post Office, State, & ZIP Code<br><i>Gainesville FL</i>                     |    |
| 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<br><i>12-18-98</i><br><i>0990332-006</i><br><i>PSD-196</i> |    |

PS Form 3800, April 1995

Is your RETURN ADDRESS completed on the reverse side?

**SENDER:**

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- 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):

- Addressee's Address
- Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

*MR. David A. Buff P.E.*  
*Golder Assoc.*  
*6241 NW 23 St. Suite 500*  
*Gainesville, FL 32653-1500*

4a. Article Number

*2333 612 574*

4b. Service Type

- |   |   |
|---|---|
| <input type="checkbox"/> Registered                     | <input checked="" type="checkbox"/> Certified |
| <input type="checkbox"/> Express Mail                   | <input type="checkbox"/> Insured              |
| <input type="checkbox"/> Return Receipt for Merchandise | <input type="checkbox"/> COD                  |

7. Date of Delivery

*12/23/98*

5. Received By: (Print Name)

*[Signature]*

6. Signature: (Addressee or Agent)

*Mike Kennel*

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

Thank you for using Return Receipt Service.



Check Sheet

Company Name: Orion Power  
Permit Number: 0990332-009-AC & 0990332-010-AC  
PSD Number: F-196  
Permit Engineer: John Reynolds & Jeff Koerner

**Application:**

- Initial Application
  - Incompleteness Letters
  - Responses
  - Waiver of Department Action
  - Department Response
  - Other

**Cross References:**

- 
- 
- 

**Intent:**

- Intent to Issue
- Notice of Intent to Issue
- Technical Evaluation
- BACT Determination
- Unsigned Permit

Correspondence with:

- EPA
- Park Services
- Other
- Proof of Publication
  - Petitions - (Related to extensions, hearings, etc.)
  - Waiver of Department Action
  - Other

**Final Determination:**

- Final Determination
- Signed Permit
- BACT Determination
- Other

196F

**Post Permit Correspondence:**

- Extensions/Amendments/Modifications
- Other