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JUN 16 2008  
June 13, 2008

**BUREAU OF AIR REGULATION**

Syed Arif, P.E.  
Bureau of Air Regulation  
Division of Air Resource Management  
Florida Department of Environmental Protection  
2600 Blair Stone Road  
Tallahassee, FL 32399-2400

**Subject:** JEA Greenland Energy Center - Response to Request for Additional Information

**Reference:** DEP File No. 0310561-001-AC (PSD-FL-401)  
Request for Additional Information Letter of May 20, 2008

Dear Syed:

On behalf of JEA, please find enclosed an original and four (4) copies of the response to the Department's request for additional information (RAI letter of May 20, 2008). Enclosed as part of this package, please find a response document with attachments and a CD-ROM with an Excel workbook containing the requested Kennedy Generating Station CEMs data.

We appreciate the opportunity to provide this additional information, and trust it will assist in the Department's review of the application. If you have any questions, please do not hesitate to contact me at (913) 458-7928, or Ajay Kasarabada at (913) 458-9837, or Bert Gianazza of JEA at (904) 665-6247.

Sincerely,

Timothy M. Hillman  
Air Permitting Manager  
BLACK & VEATCH

Enclosure[s]

cc: Bert Gianazza, P.E., JEA  
Angela Morrison, HG&S  
Donnie Griffin, B&V

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**JEA – Greenland Energy Center  
Units 1 and 2  
Simple Cycle Combustion Turbines**

**Prevention of Significant Deterioration  
Air Permit Application**

**Response to FDEP Request for Additional  
Information of May 20, 2008**

June 2008

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Prepared for:  
JEA  
Jacksonville, Florida



Prepared by:  
Black & Veatch  
Overland Park, Kansas



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# FDEP Letter



# Florida Department of Environmental Protection

Bob Martinez Center  
2600 Blairstone Road  
Tallahassee, Florida 32399-2400

Charlie Crist  
Governor  
Jeff Kottkamp  
Lt. Governor  
Michael W. Sole  
Secretary

May 20, 2008

*Electronically Sent - Received Receipt Requested*

Mr. James M. Chansler, P.E., D.P.A. [ChanJM@jea](mailto:ChanJM@jea)  
Chief Operating Officer  
Jacksonville Electric Authority (JEA)  
21 West Church Street  
Jacksonville, Florida 32202

Re: DEP File No. 0310561-001-AC (PSD-FL-401)  
Greenland Energy Center  
Nominal 352 megawatt (MW) on gas and 380 MW on oil Peaking Power Plant

Dear Mr. Chansler:

On April 21, 2008 we received your application for an Air Construction Permit pursuant to the Rules for the Prevention of Significant Deterioration (PSD permit) to construct a dual fuel peaking power plant (two simple cycle General Electric 7FA combustion turbines) to be known as Greenland Energy Center site in Duval County.

Pursuant to Rules 62-4.055, and 62-4.070 F.A.C., Permit Processing, the Department requests submittal of the additional information prior to processing the application. 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.

## **Application General Information**

1. The use of natural gas (vaporized liquefied natural gas) and ultra low-sulfur fuel oil (ULSFO) has been proposed as BACT for SO<sub>2</sub> for this project. According to the application, two distinct operating scenarios are proposed considering the natural gas availability at the site. Under the first scenario when natural gas is not available, the turbines will fire ULSFO for not more than 1000 hours per year per turbine. Under the second scenario, when natural gas is available, the turbines will fire natural gas for 3000 hours per year per turbine and ULSFO for 500 hours per year per turbine. Please provide the time frame with supporting information from the pipeline vendor for the availability of natural gas in the area and the combustion of natural gas in the turbines.
2. According to the application (Page 2-5) 277 thousand gallons per day (17 hour of operation) per CTG is requested for compliance with regional haze impact thresholds. It appears the consumption of the emergency equipment was not included in this request. Please explain.
3. If possible provide an 8 X 11' photo or drawing of this site.

4. Describe the procedures used for startup and shutdown of this unit to minimize excess emissions.
5. Please supply emissions data for CO and NOx from the JEA Kennedy Plant for the GE 7FA simple cycle combustion while burning oil and gas. If continuous emissions monitoring data is available, the recent six months data will suffice. If not, please provide the last three years stack test emissions data for CO and NOx.
6. Complete application information DEP Form 62-210.900(1) for the ancillary equipment. Although these units may be exempted from permitting (based on emissions and capacity), we need to include them in the PSD construction permit as part of the overall project.
7. Does JEA comply with the local program air pollution control regulations? If so, what regulations apply to this project?

**Best Available Control Technology (BACT) Analysis**

8. According to tests conducted at TECO Polk Power Station, a simple cycle GE 7FA unit achieved between 1 and 3 ppmvd CO at loads between 50 and 100 percent while burning fuel oil. These are very low emissions. We understand that GE will not actually guarantee these low values, but it is worth mentioning this fact in your analysis of CO control costs. We want to have the most accurate possible information in the record.
9. The cost calculation for the carbon monoxide catalyst appears high. The Department obtained lower capital cost estimates from suppliers than submitted by applicants during permitting of several recent projects. The Department believes that even with lower capital cost estimates similar to the ones obtained by the Department, the project will not be cost-effective for the installation of oxidation catalyst. Still, the following points should have been considered in the application:
  - Typically costs are acknowledged for additional fuel use to account loss of any capacity when using catalyst but not the value of lost electric sales.
  - Oxidation catalyst typically lasts much longer than three years. A more realistic lifetime should be assumed rather than just assuming that the catalyst requires replacement after three years.
  - The oxidation catalyst would also reduce volatile organic compounds (VOC) and formaldehyde emissions, which could have been included in the cost effectiveness evaluation.

**Future Phase Combined Cycle Operation**

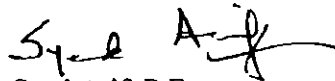
10. Please note that this technical incompleteness review is limited to the simple cycle operation mode. You have requested up to 3500 hours of operation for each simple cycle gas turbine. At this level, it appears that a high-temperature SCR system (NOx control) and an oxidation catalyst system (CO control) may not be cost effective. However, any permit issued pursuant to this request will include a requirement to operate in simple cycle mode only. In addition, future conversion of any unit to combined cycle operation will invoke the source obligation requirements of Rule 62-212.400(12)(b), F.A.C. and the modification will be reviewed as if

the simple cycle units had never been constructed with a new determination of the Best Available Control Technology for each significant pollutant. Please comment.

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. Please advise the professional engineer to make sure he/she uses the correct seal in compliance with the applicable requirements of the Florida Board of Professional Engineers. Please note that per Rule 62-4.055(1): "The applicant shall have ninety days after the Department mails a timely request for additional information to submit that information to the Department... Failure of an applicant to provide the timely requested information by the applicable date shall result in denial of the application."

We will forward any comments from the Northeast District Office, EPA Region IV and the National Park Service as soon as they are received. If you have any questions regarding this matter, please contact Syed Arif (review engineer) at 850/921-9528 or Cleve Holladay (meteorologist) at 850/921-8986.

Sincerely,



Syed Arif, P.E.  
New Source Review Section  
Bureau of Air Regulation

cc: Gregg Worley, EPA Region 4: [worley.gregg@epa.gov](mailto:worley.gregg@epa.gov)  
Katy Forney, EPA Region 4: [forney.kathleen@epa.gov](mailto:forney.kathleen@epa.gov)  
Scott Davis, EPA Region 4: [davis.scottr@epa.gov](mailto:davis.scottr@epa.gov)  
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Richard Robinson, EQD: [robinson@coj.net](mailto:robinson@coj.net)

# Response



**Response to FDEP Bureau of Air Regulation  
Request for Additional Information (RAI) of May 20, 2008  
JEA Greenland Energy Center**

**Application General Information**

**RAI Comment 1**

*The use of natural gas (vaporized liquefied natural gas) and ultra low-sulfur fuel oil (ULSFO) has been proposed as BACT for SO<sub>2</sub> for this project. According to the application, two distinct operating scenarios are proposed considering the natural gas availability at the site. Under the first scenario when natural gas is not available, the turbines will fire ULSFO for not more than 1000 hours per year per turbine. Under the second scenario, when natural gas is available, the turbines will fire natural gas for 3000 hours per year per turbine and ULSFO for 500 hours per year per turbine. Please provide the time frame with supporting information from the pipeline vendor for the availability of natural gas in the area and the combustion of natural gas in the turbines.*

**RAI Response 1**

JEA is finalizing agreements with Peoples Gas System (PGS), a division of Tampa Electric Company and SeaCoast Gas Transmission LLC for construction of natural gas pipeline infrastructure and for firm natural gas transportation service that will allow for the combustion of natural gas in JEA's proposed gas turbines to be located at the Greenland Energy Center. The targeted date for completion of pipeline infrastructure and commencement of gas transportation service is June 1, 2010. This date coincides with the expected commercial date of JEA's gas turbines at its proposed Greenland Energy Center. If available and required by JEA, natural gas service may commence prior to the targeted date to allow for natural gas testing in the gas turbines. If natural gas service is delayed beyond the targeted date, JEA will be prepared to rely on the combustion of fuel oil until construction of natural gas pipeline infrastructure is completed and natural gas service is available.

**RAI Comment 2**

*According to the application (Page 2-5) 277 thousand gallons per day (17 hour of operation) per CTG is requested for compliance with regional haze impact thresholds. It appears the consumption of the emergency equipment was not included in this request. Please explain.*

**RAI Response 2**

As discussed in the approved air dispersion modeling protocol for the Project, because of their infrequent, short duration, and typically non-concurrent operation as emergency response equipment, the emergency generator and fire pump engines are not included in long range regional haze 24-hour averaging period modeling, and thus not included in the 277 thousand gallons per day per CTG fuel oil firing restriction. However, the 1,500 kW emergency diesel engine along with the 350 bhp emergency diesel fire pump will be limited to using no more than 32 thousand gallons per year of ULSFO to meet the categorical exemption requirements of 62-210.300(3)(a) 35 and 36, respectively.

**RAI Comment 3**

*If possible provide an 8 X 11' photo or drawing of this site.*

**RAI Response 3**

An 8.5" X 11" artist's rendering of the proposed JEA Greenland Energy Center is attached.

**RAI Comment 4**

*Describe the procedures used for startup and shutdown of this unit to minimize excess emissions.*

**RAI Response 4**

The starting, loading and shutdown procedures for the 7FA simple cycle units at the Greenland Energy Center will be similar to those of JEA's Kennedy 7 and Brandy Branch 1. Each facility utilizes both BACT and Operator interface to optimize environmental compliance when the units are firing gas fuel or liquid fuel. While the following startup and shutdown procedures are based on the Kennedy and Brandy Branch simple cycle CTs, the Greenland Energy Center's procedures will be similar in description and function.

**Starting, Loading and Shutdown**

JEA's simple cycle gas turbines start by way of automated, timed, device driven sequences of events. The GE MKVI control system insures proper operation and monitoring of all systems needed for successful starting, loading and shutdown of the gas turbine. Per the manufacturer's procedures, JEA's simple cycle units have an identified startup time from turning gear to initial synchronization. Loading ramp rates, which may be subject to change, are recommended at 10 megawatts per minute and the units are released to system dispatch at a recommended 85 megawatts. Shutdown time of the gas turbine is dependent on the unit

load at the time of the stop request. The entire process is automated and requires no operator interaction, although the unit is monitored by plant personnel at the site, which is manned 24 hours per day.

### **Gas Fuel Operation**

The gas turbine's BACT while firing gas is comprised of a GE MKVI control system and a Dry Low NO<sub>x</sub> (DLN) combustion system in order to keep corrected NO<sub>x</sub> values equal to or less than GE's engine guaranteed output of 9 ppm corrected NO<sub>x</sub> while firing gas fuel. NO<sub>x</sub> emissions are guaranteed when the DLN system is operating in "Mode 6" which is the normal mode of operation at loads greater than 65 megawatts. Plant operations personnel monitor the unit during startup, using Continuous Emissions Monitoring System (CEMs) data to accurately track both CO and NO<sub>x</sub> values to assure environmental compliance at all times. In the event that the unit was to leave "Mode 6", audible and visual alarms are generated, forcing corrective action up to and including shutdown of the unit if emissions compliance exceeds allowable limits. The gas turbine utilizes GE's Model Based Control product for continuous on line engine dynamic tuning in order to optimize the engines operation to achieve the lowest emissions possible as a final tuning element to the DLN system. In conjunction with plant operating personnel, GE also monitors the units 24-7 so that in the event of combustion transients that could lead to engine emissions greater than those guaranteed, corrective action can be taken to avoid a non compliance event.

Plant personnel perform routine preventative maintenance procedures and calibrations on all equipment such as Inlet Guide Vanes, Inlet Bleed Heat, Control Transmitters and Devices, Gas Valve Servos and Hydraulic Systems, which have a direct impact on the reliability and proper operation of the engines combustion system.

### **Liquid Fuel Operation**

The gas turbine's BACT while firing liquid fuel (distillate) is utilization of Water Injection into the engine's individual combustors in order to reduce firing temperature, thus reducing NO<sub>x</sub>. Minimum load on the gas turbine is 80 megawatts while firing oil, as water injection is not initiated before the gas turbine's firing temperature reference is greater than 2,120 degrees F. Unit loads less than 80 megawatts are prohibited, as in the absence of water injection, NO<sub>x</sub> values will be greater than the engine manufacturers guaranteed output of corrected NO<sub>x</sub> of 42 ppm or less. As with gas fuel firing, plant operations personnel utilize CEMs data and unit alarm screens to avoid non compliance events from occurring. Unlike gas fuel operation, no engine tuning is required while firing liquid fuel, as NO<sub>x</sub> levels are a

function of firing temperature. Water injection is the only process in place by which firing temperature can be effectively lowered while firing oil.

Plant personnel perform routine preventative maintenance and calibrations on water injection systems and liquid fuel systems to assure safe, proper and environmentally compliant operation of the gas turbine while firing liquid fuel.

**RAI Comment 5**

*Please supply emissions data for CO and NO<sub>x</sub> from the JEA Kennedy Plant for the GE 7F A simple cycle combustion while burning oil and gas. If continuous emissions monitoring data is available, the recent six months data will suffice. If not, please provide the last three years stack test emissions data for CO and NO<sub>x</sub>.*

**RAI Response 5**

Kennedy CT-7 is equipped with a continuous emissions monitor (CEMs) for NO<sub>x</sub>, but not for CO. As such, an attached CD contains one year of NO<sub>x</sub> CEMs data collected from May 2007 through May 2008, including both natural gas and fuel oil combustion. For CO, the 3 most recent years of CO stack testing results while firing natural gas are attached, as well as the results of a CO fuel oil stack test conducted in 2000.

**RAI Comment 6**

*Complete application information DEP Form 62-21 0.900 (I) for the ancillary equipment. Although these units may be exempted from permitting (based on emissions and capacity), we need to include them in the PSD construction permit as part of the overall project.*

**RAI Response 6**

The completed application forms for the emergency diesel fire pump and the emergency diesel engine generator are attached.

**RAI Comment 7**

*Does JEA comply with the local program air pollution control regulations? If so, what regulations apply to this project?*

### **RAI Response 7**

JEA is subject to and in compliance with the Rules of the Jacksonville Environmental Protection Board (JEPB). JEPB regulations applicable to this Project include the following Rule 2 – Air Pollution Control parts:

- Part I: General Provisions
- Part II: Air Pollution Control – General Provisions - Incorporates by reference Chapter 62-204, FAC.
- Part III: Stationary Sources – General Requirements – Incorporates by reference Chapter 62-210, FAC.
- Part IV: Stationary Sources – Preconstruction Review – Incorporates by reference Chapter 62-212, FAC.
- Part V: Operating Permits for Major Sources of Air Pollution – Incorporates by reference Chapter 62-213, FAC.
- Part IX: Air Pollution Episodes
- Part X: Stationary Sources – Emission Standards – Incorporates by reference Chapter 62-296, FAC.
- Part XI: Stationary Sources – Emission Monitoring – Incorporates by reference Chapter 62-297, FAC.
- Part XII: Air Pollution Nuisance Rules – 2.1203 Air Pollution Nuisances
- Part XIII: Permits – General Provisions – Incorporates by reference Chapter 62-4, FAC.

### **Best Available Control Technology (BACT) Analysis**

#### **RAI Comment 8**

*According to tests conducted at TECO Polk Power Station, a simple cycle GE 7F A unit achieved between 1 and 3 ppmvd CO at loads between 50 and 100 percent while burning fuel oil. These are very low emissions. We understand that GE will not actually guarantee these low values, but it is worth mentioning this fact in your analysis of CO control costs. We want to have the most accurate possible information in the record.*

#### **RAI Response 8**

JEA understands the Department has test data at TECO Polk Power Station, a simple cycle GE 7FA unit, which has achieved between 1 and 3 ppmvd CO at loads between 50 and 100 percent while burning ultra-low sulfur fuel oil (ULSFO). While these values are less than the GE guarantee, if the CO BACT analysis were to use 3 ppmvd as an emission basis when firing ULSFO, the total cost effectiveness for utilizing an oxidation catalyst on the Project

would more than double when compared to the cost effectiveness based on a GE guarantee of 8.0 ppmvd at 15 percent oxygen (from 80% to 100% load), making the addition of add-on controls even more cost prohibitive. Therefore, based on the BACT analysis conducted for this Project, JEA concludes that add-on controls to further reduce CO emissions are cost prohibitive, given the GE guarantee and the actual low CO emission characteristics of the GE 7FA.

#### **RAI Comment 9**

*The cost calculation for the carbon monoxide catalyst appears high. The Department obtained lower capital cost estimates from suppliers than submitted by applicants during permitting of several recent projects. The Department believes that even with lower capital cost estimates similar to the ones obtained by the Department, the project will not be cost-effective for the installation of oxidation catalyst. Still, the following points should have been considered in the application:*

- *Typically costs are acknowledged for additional fuel use to account loss of any capacity when using catalyst but not the value of lost electric sales.*
- *Oxidation catalyst typically lasts much longer than three years. A more realistic lifetime should be assumed rather than just assuming that the catalyst requires replacement after three years.*
- *The oxidation catalyst would also reduce volatile organic compounds (VOC) and formaldehyde emissions, which could have been included in the cost effectiveness evaluation.*

#### **RAI Response 9**

JEA agrees with the Department's position that an oxidation catalyst is not cost effective for the two (2) GE 7FA's proposed for this Project. Additionally, JEA appreciates feedback on the cost calculation for the oxidation catalyst when compared to other recent projects in Florida. In response to this comment, JEA has incorporated into the BACT analysis the Department's points with respect to lost electric sales when utilizing an oxidation catalyst and the catalyst life assumption.

Specifically, Tables 3-15 and 3-16, CO Control Annualized Cost for Each CTG (ULSFO: Pre-Onsite Natural Gas Availability) and (Natural Gas + ULSFO: Post-Onsite Natural Gas Availability), respectively from the BACT analysis, have been modified to incorporate the Department's comments. In the modified tables, the lost electric sales (lost power generation) has been assumed to be zero, which is the most conservative approach (i.e., no

consideration of additional fuel use) in determining the total cost effectiveness for an oxidation catalyst. As for the catalyst life, JEA has assumed a six (6) year life, which is double the vendor guarantee. The Department should note that vendors are typically willing to guarantee a longer catalyst life, but only if more catalyst volume is added. Of course, adding more catalyst will serve to partially offset the cost savings of realizing a longer catalyst life. Nonetheless, for the purpose of this response, JEA has conservatively assumed a 6 year catalyst life, with no cost change assumed for the associated increase in catalyst volume. In addition to the aforementioned tables, Section 3.8.4 of the BACT, Total Annualized Costs for Oxidation Cost, has been updated with these results and included in this response. As the revised analysis demonstrates, an oxidation catalyst is still excessively cost prohibitive for the Project.

Finally, JEA acknowledges the point that the addition of VOC and formaldehyde emissions reductions to the BACT analysis would affect the cost effectiveness of an oxidation catalyst, as it provides some control potential for these pollutants. However, JEA has demonstrated in the PSD Air Construction Permit Application that emissions of VOC are less than the PSD applicability threshold. Therefore, the Project is not subject to VOC BACT review or the cost effective analysis of add-on controls. As for formaldehyde, the Project does not trigger the National Emission Standards for any Hazardous Air Pollutants (40 CFR Part 63, Subpart YYYYY), making it a minor source for all HAPs, including formaldehyde, and therefore not subject to formaldehyde emission control regulation.

**Table 3-15 (Revised)**  
**CO Control Annualized Cost For Each CTG**  
**(ULSFO: Pre-Onsite Natural Gas Availability)**

	Good Combustion Controls/DLN	Oxidation Catalyst	Remarks
<b>Direct Annual Cost</b>			Cost based on emissions in Tables 3-3.
Catalyst Replacement	N/A	146,000	Includes freight, installation, and 6-yr. capital recovery factor based on 6 yr. guaranteed catalyst life.
Operation and Maintenance	N/A	0	Not applicable for Oxidation Catalyst
Lost Power Generation		0	Back pressure on combustion turbine
<b>Total Direct Annual Cost</b>	<b>N/A</b>	<b>146,000</b>	
<b>Indirect Annual Costs</b>			
Overhead	N/A	0	Not Applicable because of zero O&M
Administrative Charges	N/A	53,000	2% of Installed Costs
Property Taxes	N/A	0	Not included
Insurance	N/A	27,000	1% of Installed Costs
Capital Recovery	N/A	158,000	Capital recovery excluding catalyst.
<b>Total Indirect Annual Costs</b>	<b>N/A</b>	<b>238,000</b>	
<b>Total Annualized Cost</b>	<b>Base</b>	<b>384,000</b>	
CO Annual Emissions, tpy	19.1	4.8	Emissions taken from Table 3-3.
CO Emissions Reduction, tpy	N/A	14.3	Emissions taken from Table 3-3.
<b>CO Total Cost Effectiveness, \$/ton</b>	<b>N/A</b>	<b>26,853</b>	<b>Total Annualized Cost/Emissions Reduction</b>



**Table 3-16 (Revised)**  
**CO Control Annualized Cost For Each CTG**  
**(Natural Gas + ULSFO: Post-Onsite Natural Gas Availability)**

	Good Combustion Controls/DLN	Oxidation Catalyst	Remarks
<b>Direct Annual Cost</b>			Cost based on emissions in Tables 3-4.
Catalyst Replacement	N/A	146,000	Includes freight, installation, and 6-yr. capital recovery factor based on 6 yr. guaranteed catalyst life.
Operation and Maintenance	N/A	0	Not applicable for Oxidation Catalyst
Lost Power Generation		0	Back pressure on combustion turbine
<b>Total Direct Annual Cost</b>	<b>N/A</b>	<b>146,000</b>	
<b>Indirect Annual Costs</b>			
Overhead	N/A	0	Not Applicable because of zero O&M
Administrative Charges	N/A	53,000	2% of Installed Costs
Property Taxes	N/A	0	Not included
Insurance	N/A	27,000	1% of Installed Costs
Capital Recovery	N/A	158,000	Capital recovery excluding catalyst.
<b>Total Indirect Annual Costs</b>	<b>N/A</b>	<b>238,000</b>	
<b>Total Annualized Cost</b>	<b>Base</b>	<b>384,000</b>	
CO Annual Emissions, tpy	33.9	14.3	Emissions taken from Table 3-4.
CO Emissions Reduction, tpy	N/A	19.6	Emissions taken from Table 3-4.
<b>CO Total Cost Effectiveness, \$/ton</b>	<b>N/A</b>	<b>19,592</b>	<b>Total Annualized Cost/Emissions Reduction</b>

### **3.8.4 Total Annualized Costs for Oxidation Catalyst (Revised)**

Total annualized costs for the oxidation control system is calculated as the sum of operating costs plus the system capital recovery cost. The system capital recovery cost is the product of the system capital recovery factor (CRF) and the total installed costs. Firing exclusively 1,000 hours per unit per year on ULSFO (pre-onsite natural gas availability), the total annualized cost for a 2.0 ppmvd CO oxidation catalyst systems for each CTG is estimated to be \$384,000. This annualized cost for each CTG results in a cost effectiveness of approximately \$26,853 per ton of CO removed. Firing 3,000 hours per unit per year on natural gas and 500 hours per unit per year on ULSFO (post-onsite natural gas availability), the total annualized cost for a 2.0 ppmvd CO oxidation catalyst systems for each CTG is estimated to be \$384,000. This annualized cost for each CTG results in a cost effectiveness of approximately \$19,592 per ton of CO removed.

### **Future Phase Combined Cycle Operation**

#### **RAI Comment 10**

*Please note that this technical incompleteness review is limited to the simple cycle operation mode. You have requested up to 3500 hours of operation for each simple cycle gas turbine. At this level, it appears that a high-temperature SCR system (NO<sub>x</sub> control) and an oxidation catalyst system (CO control) may not be cost effective. However, any permit issued pursuant to this request will include a requirement to operate in simple cycle mode only. In addition, future conversion of any unit to combined cycle operation will invoke the source obligation requirements of Rule 62-212.400(12)(b), F.A.C. and the modification will be reviewed as if the simple cycle units had never been constructed with a new determination of the Best Available Control Technology for each significant pollutant. Please comment.*

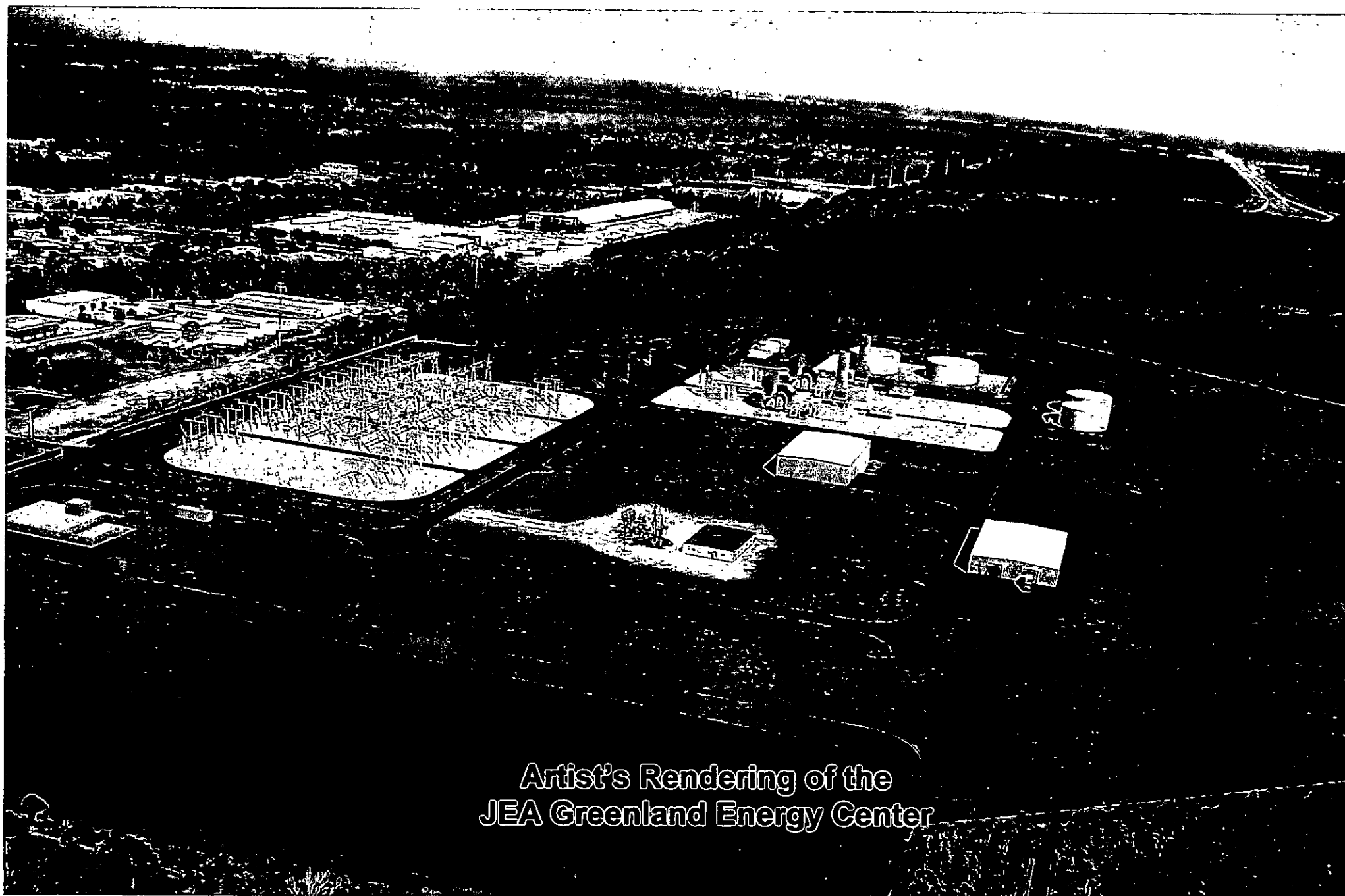
#### **RAI Response 10**

JEA appreciates the Department's advisement on this issue, and is fully aware that this air permit will limit the construction and operation of this facility to simple cycle mode only. Additionally, JEA understands that upon initiating the air permitting process to convert the facility to combined cycle, the entire facility will be subject to Prevention of Significant Deterioration (PSD) review again, as if the simple cycle units were never constructed in terms of New Source Review applicability. In fact, those specific issues were among the topics of discussion during a pre-application meeting held on February 6, 2008 between JEA and the Department, with Jeff Koerner, Al Linero, Trina Vielhauer, Cleve Holladay, and Corrie Branum in attendance from the FDEP. As a result of this meeting, a memorandum

was prepared by Trina Vielhauer to Jeremy Susac, FDEP Energy Office, on February 12, 2008, communicating JEA's intentions regarding the Project's possible future conversion to a combined cycle facility. A copy of the aforementioned memorandum is attached herein for reference.

# Attachments

**RAI 3 – 8.5" X 11" Artist's Rendering of JEA's Proposed  
Greenland Energy Center**



Artist's Rendering of the  
JEA Greenland Energy Center



**RAI 5 – Kennedy Generating Station NO<sub>x</sub> and CO  
CEMs and Stack Test Emissions Data**



## EXECUTIVE SUMMARY

On October 4, 2005, Coastal Air Consulting, Inc. conducted the Annual Compliance Test for Carbon Monoxide emissions and on October 6, 2005 conducted Relative Accuracy Test Audits on the NO<sub>x</sub> and O<sub>2</sub> continuous emission monitors at the JEA Kennedy Generating Station Combustion Turbine KCT-7. This testing was performed in order to satisfy specific testing requirements in the facilities permit as well as the requirements of 40 CFR Part 75 for CEMS operation.

The results are summarized in the table below:

**JEA KCT-7 COMPLIANCE**

PARAMETERS	TEST RESULTS	ALLOWABLE
Carbon Monoxide	0.12 ppm @ 15% O <sub>2</sub>	15 PPM @ 15% O <sub>2</sub>
Visible Emissions	0.00%	10% Opacity

**JEA KCT-7 RATA**

PARAMETERS	TEST RESULTS	ALLOWABLE ANNUAL	BIAS ADJUSTMENT
NO <sub>x</sub> (PPM)	3.551%	7.5%	1.030
NO <sub>x</sub> (LB/MMBTU)	4.752%	7.5%	1.029
O <sub>2</sub> (%)	0.463%	7.5%	NA

The turbine was operating at base load and firing with natural gas during all testing. The test results demonstrated compliance at the time of testing with the applicable standards.

JO KENNEDY GENERATING STATION  
KCT 7

LOAD: 163 MW  
FUEL: 100 % GAS  
DATE: 10/4/2005  
RUN: 1  
WET BULB: 78 °F  
DRY BULB: 84 °F  
RH: 68%

AVG. ADJUSTED NOx ppmvd @ 15% O2	#VALUE!
AVG. ADJUSTED CO ppmvd @ 15% O2	0.21
CORRECTED NOx ppmvd	#VALUE!
CORRECTED O2 %	13.58
CORRECTED CO ppmvd	0.28
NOx LB/MBTU	#VALUE!
CO LB/MBTU	0.0005

ANALYZER RESPONSE, SYSTEM BIAS AND SYSTEM DRIFT DATA

SPAN SETTING	CAL GASES	TANK VALUE	ANALYZER RESPONSE VALUE	DIFFERENCE PPM	% SPAN	SYSTEM BIAS VALUE	% SPAN	SYSTEM BIAS VALUE	% SPAN	% DRIFT	ANALYZER SERIAL #
25	PPM NOx	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.40	0.40	42CHL72772-372
		11.80	11.80	0.00	0.00	11.80	0.00	11.70	-0.40	-0.40	
		21.30	21.50	0.20	0.80						
25	% O2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	01420B153
		12.50	12.50	0.00	0.00	12.50	0.00	12.50	0.00	0.00	
		22.50	22.80	0.10	0.40						
20	PPM CO	0.0	0.00	0.00	0.0	0.10	0.5	0.30	1.5	1.0	48C68845-381
		6.20	6.20	0.00	0.0	6.10	-0.5	6.30	0.5	1.0	
		12.20	12.00	-0.20	-1.0						

UNCORRECTED REFERENCE DATA

DATE TIME	NOx PPM	O2 %	CO PPM	DATE TIME	NOx PPM	O2 %	CO PPM
10/4/2005 13:00	12.28	13.60	0.35	10/4/2005 13:40	12.19	13.58	0.75
10/4/2005 13:01	12.25	13.60	0.43	10/4/2005 13:41	12.20	13.58	0.48
10/4/2005 13:02	12.33	13.60	0.45	10/4/2005 13:42	12.11	13.58	0.33
10/4/2005 13:03	12.33	13.61	0.40	10/4/2005 13:43	12.21	13.58	0.38
10/4/2005 13:04	12.28	13.60	0.53	10/4/2005 13:44	12.24	13.58	0.43
10/4/2005 13:05	12.26	13.61	0.55	10/4/2005 13:45	12.25	13.58	0.38
10/4/2005 13:06	12.23	13.60	0.40	10/4/2005 13:46	12.25	13.58	0.62
10/4/2005 13:07	12.34	13.60	0.53	10/4/2005 13:47	12.30	13.58	0.40
10/4/2005 13:08	12.33	13.60	0.55	10/4/2005 13:48	12.30	13.58	0.53
10/4/2005 13:09	12.23	13.60	0.48	10/4/2005 13:49	12.28	13.58	0.35
10/4/2005 13:10	12.30	13.60	0.68	10/4/2005 13:50	12.35	13.58	0.43
10/4/2005 13:11	12.31	13.59	0.43	10/4/2005 14:00	12.28	13.58	0.43
10/4/2005 13:12	12.30	13.60	0.53	10/4/2005 14:01	12.35	13.58	0.23
10/4/2005 13:13	12.31	13.59	0.62	10/4/2005 14:02	12.29	13.58	0.35
10/4/2005 13:14	12.31	13.59	0.40	10/4/2005 14:03	12.29	13.58	0.45
10/4/2005 13:15	12.33	13.59	0.73	10/4/2005 14:04	12.26	13.58	0.73
10/4/2005 13:16	12.28	13.59	0.55	10/4/2005 14:05	12.28	13.58	0.40
10/4/2005 13:17	12.29	13.59	0.48	10/4/2005 14:06	12.24	13.58	0.40
10/4/2005 13:18	12.33	13.59	0.70	10/4/2005 14:07	12.29	13.58	0.28
10/4/2005 13:19	12.24	13.59	0.65	10/4/2005 14:08	12.28	13.58	0.20
10/4/2005 13:20	12.26	13.59	0.55	10/4/2005 14:09	12.31	13.58	0.23
10/4/2005 13:30	11.99	13.58	0.30	10/4/2005 14:10	12.30	13.58	0.40
10/4/2005 13:31	12.06	13.57	0.62	10/4/2005 14:11	12.24	13.58	0.28
10/4/2005 13:32	12.20	13.57	0.43	10/4/2005 14:12	12.35	13.57	0.60
10/4/2005 13:33	12.29	13.57	0.35	10/4/2005 14:13	12.36	13.58	0.48
10/4/2005 13:34	12.20	13.58	0.40	10/4/2005 14:14	12.33	13.57	0.35
10/4/2005 13:35	12.30	13.57	0.38	10/4/2005 14:15	12.30	13.57	0.23
10/4/2005 13:36	12.28	13.58	0.45	10/4/2005 14:16	12.36	13.57	0.28
10/4/2005 13:37	12.41	13.58	0.58	10/4/2005 14:17	12.34	13.57	0.55
10/4/2005 13:38	12.25	13.58	0.45	10/4/2005 14:18	12.29	13.57	0.40
10/4/2005 13:39	12.213	13.5813	0.5	10/4/2005 14:19	12.29	13.57	0.40

\* Resumed after RATA calibrations

MEAN ANALYZER VALUES

F Factor 8710 % O2 13.58  
Avg. CO ppmvd 0.45

JO KENNEDY GENERATING STATION  
KCT 7

LOAD: 183 MW  
FUEL: 100 % GAS  
DATE: 10/4/2005  
RUN: 2  
WET BULB: 77 °F  
DRY BULB: 82 °F  
RH: 78%

AVG. ADJUSTED CO ppmvd @ 15% O2 0.08  
CORRECTED O2 % 13.56  
CORRECTED CO ppmvd 0.41  
CO LIMIT 0.0002

ANALYZER RESPONSE, SYSTEM BIAS AND SYSTEM DRIFT DATA

W TNG	CAL GASES	TANK VALUE	ANALYZER RESPONSE VALUE	DIFFERENCE PPM	% SPAN	SYSTEM BIAS VALUE	% SPAN	SYSTEM BIAS VALUE	% SPAN	% DRIFT	ANALYZER SERIAL #
5	PPM NOx	0.00	0.00	0.00	0.00	0.10	0.40	0.10	0.40	0.00	42CHL72772-372
		11.80	11.80	0.00	0.00	11.70	-0.40	12.00	0.80	1.20	
		21.30	21.50	0.20	0.80						
5	% O2	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.40	0.40	014208153
		12.50	12.50	0.00	0.00	12.50	0.00	12.50	0.00	0.00	
		22.50	22.60	0.10	0.40						
0	PPM CO	0.0	0.00	0.00	0.0	0.30	1.5	0.30	1.5	0.0	48C88845-361
		6.20	6.20	0.00	0.0	6.30	0.5	6.40	1.0	0.5	
		12.20	12.00	-0.20	-1.0						

UNCORRECTED REFERENCE DATA

DATE TIME	O2 %	CO PPM	DATE TIME	O2 %	CO PPM
10/4/2005 14:30	13.54	0.45	10/4/2005 15:10	13.58	0.50
10/4/2005 14:31	13.54	0.33	10/4/2005 15:11	13.58	0.28
10/4/2005 14:32	13.55	0.48	10/4/2005 15:12	13.58	0.38
10/4/2005 14:33	13.56	0.40	10/4/2005 15:13	13.58	0.62
10/4/2005 14:34	13.54	0.28	10/4/2005 15:14	13.58	0.35
10/4/2005 14:35	13.56	0.43	10/4/2005 15:15	13.58	0.53
10/4/2005 14:36	13.56	0.35	10/4/2005 15:16	13.58	0.45
10/4/2005 14:37	13.56	0.65	10/4/2005 15:17	13.58	0.35
10/4/2005 14:38	13.56	0.38	10/4/2005 15:18	13.58	0.45
10/4/2005 14:39	13.55	0.23	10/4/2005 15:19	13.58	0.50
10/4/2005 14:40	13.55	0.28	10/4/2005 15:20	13.58	0.62
10/4/2005 14:41	13.56	0.20	10/4/2005 15:30	13.54	0.38
10/4/2005 14:42	13.55	0.20	10/4/2005 15:31	13.54	0.30
10/4/2005 14:43	13.56	0.50	10/4/2005 15:32	13.55	0.30
10/4/2005 14:44	13.56	0.43	10/4/2005 15:33	13.55	0.20
10/4/2005 14:45	13.56	0.58	10/4/2005 15:34	13.55	0.23
10/4/2005 14:46	13.56	0.70	10/4/2005 15:35	13.55	0.13
10/4/2005 14:47	13.57	0.80	10/4/2005 15:36	13.55	0.33
10/4/2005 14:48	13.56	0.70	10/4/2005 15:37	13.55	0.30
10/4/2005 14:49	13.56	0.82	10/4/2005 15:38	13.54	0.25
10/4/2005 14:50	13.56	0.55	10/4/2005 15:39	13.54	0.15
10/4/2005 15:00	13.55	0.40	10/4/2005 15:40	13.54	0.28
10/4/2005 15:01	13.55	0.35	10/4/2005 15:41	13.54	0.23
10/4/2005 15:02	13.56	0.62	10/4/2005 15:42	13.54	0.25
10/4/2005 15:03	13.56	0.53	10/4/2005 15:43	13.54	0.08
10/4/2005 15:04	13.56	0.38	10/4/2005 15:44	13.54	0.20
10/4/2005 15:05	13.56	0.43	10/4/2005 15:45	13.54	0.23
10/4/2005 15:06	13.57	0.53	10/4/2005 15:46	13.54	0.18
10/4/2005 15:07	13.58	0.58	10/4/2005 15:47	13.54	0.26
10/4/2005 15:08	13.58	0.58	10/4/2005 15:48	13.54	0.50
10/4/2005 15:09	13.58	0.50	10/4/2005 15:49	13.56	0.87

assumed after RATA calibrations

MEAN ANALYZER VALUES

F Factor 8710 % O2 13.56  
Avg. CO ppmvd 0.41

## JO KENNEDY GENERATING STATION

KCT 7

LOAD: 157  
 FUEL: 100 % GAS  
 DATE: 10/4/2005  
 RUN: 3  
 WET BULB: 75 °F  
 DRY BULB: 78 °F  
 RH: 86%

AVG. ADJUSTED CO ppmvd @ 15% O<sub>2</sub> 6.05  
 CORRECTED O<sub>2</sub> % 13.54  
 CORRECTED CO ppmvd 0.32  
 CO LIMIT/STV 0.0001

## ANALYZER RESPONSE, SYSTEM BIAS AND SYSTEM DRIFT DATA

SPAN SETTING	CAL GASES	TANK VALUE	ANALYZER RESPONSE VALUE	DIFFERENCE PPM	% SPAN	SYSTEM BIAS VALUE	% SPAN	SYSTEM BIAS VALUE	% SPAN	% DRIFT	ANALYZER SERIAL #
25	PPM NOx	0.00	0.00	0.00	0.00	0.10	0.40	0.10	0.40	0.00	42CHL72772-372
		11.80	11.80	0.00	0.00	12.00	0.80	11.90	0.40	-0.40	
		21.30	21.50	0.20	0.80						
25	% O <sub>2</sub>	0.00	0.00	0.00	0.00	0.10	0.40	0.00	0.00	-0.40	014208153
		12.50	12.50	0.00	0.00	12.50	0.00	12.40	-0.40	-0.40	
		22.50	22.80	0.10	0.40						
20	PPM CO	0.0	0.00	0.00	0.0	0.30	1.5	0.20	1.0	-0.5	48C68845-361
		6.20	6.20	0.00	0.0	6.40	1.0	6.30	0.5	-0.5	
		12.20	12.00	-0.20	-1.0						

## UNCORRECTED REFERENCE DATA

DATE TIME	O <sub>2</sub> %	CO PPM	DATE TIME	O <sub>2</sub> %	CO PPM
10/4/2005 16:00	13.55	0.40	10/4/2005 16:40	13.54	0.75
10/4/2005 16:01	13.56	0.20	10/4/2005 16:41	13.54	0.73
10/4/2005 16:02	13.55	0.15	10/4/2005 16:42	13.54	0.75
10/4/2005 16:03	13.56	0.28	10/4/2005 16:43	13.54	0.30
10/4/2005 16:04	13.56	0.25	10/4/2005 16:44	13.54	0.60
10/4/2005 16:05	13.56	0.30	10/4/2005 16:45	13.54	0.60
10/4/2005 16:06	13.56	0.43	10/4/2005 16:46	13.54	0.38
10/4/2005 16:07	13.55	0.45	10/4/2005 16:47	13.54	0.48
10/4/2005 16:08	13.55	0.40	10/4/2005 16:48	13.54	0.50
10/4/2005 16:09	13.55	0.18	10/4/2005 16:49	13.54	0.60
10/4/2005 16:10	13.55	0.30	10/4/2005 16:50	13.54	0.33
10/4/2005 16:11	13.55	0.38	10/4/2005 17:00	13.53	0.13
10/4/2005 16:12	13.55	0.43	10/4/2005 17:01	13.53	0.05
10/4/2005 16:13	13.54	0.50	10/4/2005 17:02	13.53	0.20
10/4/2005 16:14	13.54	0.55	10/4/2005 17:03	13.53	0.10
10/4/2005 16:15	13.54	0.50	10/4/2005 17:04	13.53	0.18
10/4/2005 16:16	13.54	0.25	10/4/2005 17:05	13.53	0.15
10/4/2005 16:17	13.54	0.43	10/4/2005 17:06	13.53	0.18
10/4/2005 16:18	13.54	0.20	10/4/2005 17:07	13.53	0.45
10/4/2005 16:19	13.54	0.28	10/4/2005 17:08	13.53	0.25
10/4/2005 16:20	13.54	0.33	10/4/2005 17:09	13.53	0.33
10/4/2005 16:30	13.54	0.10	10/4/2005 17:10	13.53	0.20
10/4/2005 16:31	13.54	0.15	10/4/2005 17:11	13.53	0.45
10/4/2005 16:32	13.54	0.40	10/4/2005 17:12	13.53	0.23
10/4/2005 16:33	13.54	0.36	10/4/2005 17:13	13.52	0.15
10/4/2005 16:34	13.54	0.25	10/4/2005 17:14	13.52	0.20
10/4/2005 16:35	13.54	0.20	10/4/2005 17:15	13.53	0.08
10/4/2005 16:36	13.54	0.20	10/4/2005 17:16	13.52	0.15
10/4/2005 16:37	13.54	0.18	10/4/2005 17:17	13.52	0.18
10/4/2005 16:38	13.54	0.15	10/4/2005 17:18	13.52	0.20
10/4/2005 16:39	13.54	0.30	10/4/2005 17:19	13.52	0.20

\* Resumed after RATA calibrations

## MEAN ANALYZER VALUES

F Factor

8710

% O<sub>2</sub>  
 Avg. CO ppmvd

13.54  
 0.32



## EXECUTIVE SUMMARY

On July 31, 2006, Coastal Air Consulting, Inc. conducted the Annual Compliance Test for Carbon Monoxide emissions and Relative Accuracy Test Audits on the NO<sub>x</sub> and O<sub>2</sub> continuous emission monitors at the JEA Kennedy Generating Station Combustion Turbine KCT-7. This testing was performed in order to satisfy specific testing requirements in the facilities permit as well as the requirements of 40 CFR Part 75 for CEMS operation.

The results are summarized in the table below:

**JEA KCT-7 COMPLIANCE**

PARAMETERS	TEST RESULTS	ALLOWABLE
Carbon Monoxide	0.24 ppm @ 15% O <sub>2</sub>	15 PPM @ 15% O <sub>2</sub>
Visible Emissions	0.00%	10% Opacity

**JEA KCT-7 RATA**

PARAMETERS	TEST RESULTS	ALLOWABLE ANNUAL	BIAS ADJUSTMENT
NO <sub>x</sub> (PPM)	1.632%	7.5%	NB
NO <sub>x</sub> (LB/MMBTU)	1.713%	7.5%	NB
O <sub>2</sub> (%)	1.027%	7.5%	NA

The turbine was operating at base load and firing with natural gas during all testing. The test results demonstrated compliance at the time of testing with the applicable standards.

JO KENNEDY GENERATING STATION  
KCT 7

LOAD: 164 MW  
FUEL: 100 % GAS  
DATE: 7/31/2008  
RUN: 1  
WET BULB: 79 °F  
DRY BULB: 92 °F  
RH: 65%

AVG. ADJUSTED CO ppmvd @ 18% O<sub>2</sub> 0.11  
CORRECTED O<sub>2</sub> % 13.70  
CORRECTED CO ppmvd 0.13  
CO LB/MMBTU 0.0002

ANALYZER RESPONSE, SYSTEM BIAS AND SYSTEM DRIFT DATA

PAN TING	CAL GASES	TANK VALUE	ANALYZER RESPONSE DIFFERENCE VALUE PPM	% SPAN	SYSTEM BIAS VALUE	% SPAN	SYSTEM BIAS VALUE	% SPAN	% DRIFT	ANALYZER SERIAL #
25	PPM NOx	0.00 11.60 21.10	0.10 11.00 20.90	0.10 0.00 -0.20	0.40 0.00 -0.80	0.10 11.70 0.40	0.00 0.40 0.00	0.10 11.50 -0.40	0.00 -0.40 -0.80	42CHL72772-372
25	% O <sub>2</sub>	0.00 12.50 22.50	0.00 12.50 22.50	0.00 0.00 0.00	0.00 0.00 0.00	0.00 12.50 0.00	0.00 0.00 0.00	0.00 12.50 0.00	0.00 0.00 0.00	01420B153
50	PPM CO	0.0 15.90 30.40	0.00 16.00 30.50	0.00 0.10 0.10	0.0 0.2 0.2	0.00 15.90 -0.2	0.0 -0.2 0.00	0.00 15.80 -0.4	0.0 -0.2 -0.2	48C68845-361

UNCORRECTED REFERENCE DATA

DATE TIME	O <sub>2</sub> %	CO PPM	DATE TIME	O <sub>2</sub> %	CO PPM
7/31/2006 13:30	13.66	0.53	7/31/2006 14:06	13.72	0.23
7/31/2006 13:31	13.68	0.13	7/31/2006 14:07	13.72	0.15
7/31/2006 13:32	13.68	0.08	7/31/2006 14:08	13.72	0.13
7/31/2006 13:33	13.69	0.10	7/31/2006 14:09	13.72	0.25
7/31/2006 13:34	13.69	0.08	7/31/2006 14:10	13.72	0.20
7/31/2006 13:35	13.69	0.00	7/31/2006 14:11	13.72	0.15
7/31/2006 13:36	13.70	0.15	7/31/2006 14:12	13.72	0.18
7/31/2006 13:37	13.70	0.10	7/31/2006 14:13	13.72	0.18
7/31/2006 13:38	13.70	0.05	7/31/2006 14:14	13.72	0.15
7/31/2006 13:39	13.71	0.00	7/31/2006 14:15	13.71	0.13
7/31/2006 13:40	13.71	0.18	7/31/2006 14:16	13.71	0.13
7/31/2006 13:41	13.71	0.20	7/31/2006 14:22	13.68	0.03
7/31/2006 13:42	13.70	0.15	7/31/2006 14:23	13.69	0.18
7/31/2006 13:43	13.70	0.20	7/31/2006 14:24	13.68	0.12
7/31/2006 13:44	13.71	0.08	7/31/2006 14:25	13.68	0.15
7/31/2006 13:45	13.70	0.05	7/31/2006 14:26	13.69	0.15
7/31/2006 13:46	13.70	0.03	7/31/2006 14:27	13.69	0.20
7/31/2006 13:47	13.70	0.18	7/31/2006 14:28	13.69	0.00
7/31/2006 13:48	13.69	0.08	7/31/2006 14:29	13.69	0.13
7/31/2006 13:49	13.70	0.03	7/31/2006 14:30	13.69	0.18
7/31/2006 13:50	13.69	0.00	7/31/2006 14:31	13.69	0.00
7/31/2006 13:56	13.73	0.00	7/31/2006 14:32	13.69	0.15
7/31/2006 13:57	13.73	0.00	7/31/2006 14:33	13.69	0.15
7/31/2006 13:58	13.73	0.00	7/31/2006 14:34	13.69	0.00
7/31/2006 13:59	13.73	0.18	7/31/2006 14:35	13.69	0.00
7/31/2006 14:00	13.73	0.13	7/31/2006 14:36	13.69	0.10
7/31/2006 14:01	13.73	0.20	7/31/2006 14:37	13.69	0.15
7/31/2006 14:02	13.73	0.20	7/31/2006 14:38	13.69	0.13
7/31/2006 14:03	13.73	0.23	7/31/2006 14:39	13.68	0.25
7/31/2006 14:04	13.73	0.10	7/31/2006 14:40	13.68	0.25
7/31/2006 14:05	13.73	0.20			

Reasured after RATA calibrations

MEAN ANALYZER VALUES

F Factor 8710 % O<sub>2</sub> 13.70  
Avg. CO ppmvd 0.13

JD KENNEDY GENERATING STATION  
KCT 7

LOAD: 168 MW  
FUEL: 100 % GAS  
DATE: 7/31/2006  
RUN: 2  
WET BULB: 78 °F  
DRY BULB: 83 °F  
RH: 72%

AVG ADJUSTED CO ppmvd @ 15% O2 13.28  
CORRECTED O2 % 13.57  
CORRECTED CO ppmvd 0.35  
CO LB/MMBTU 0.0008

ANALYZER RESPONSE, SYSTEM BIAS AND SYSTEM DRIFT DATA

PAN TING	CAL GASES	TANK VALUE	ANALYZER RESPONSE VALUE	DIFFERENCE PPM	% SPAN	SYSTEM BIAS VALUE	% SPAN	SYSTEM BIAS VALUE	% SPAN	% DRIFT	ANALYZER SERIAL #
25	PPM NOx	0.00 11.60 21.10	0.10 11.60 20.90	0.10 0.00 -0.20	0.40 0.00 -0.80	0.10 11.50 0.00	0.00 -0.40 0.00	0.00 11.60 0.00	-0.40 0.00 0.00	-0.40 0.40 0.00	42CHL72772-372
25	% O2	0.00 12.50 22.50	0.00 12.50 22.50	0.00 0.00 0.00	0.00 0.00 0.00	0.00 12.50 0.00	0.00 0.00 0.00	0.00 12.50 0.00	0.00 0.00 0.00	0.00 0.00 0.00	01420B153
50	PPM CO	0.0 15.90 30.40	0.00 16.00 30.50	0.00 0.10 0.10	0.0 0.2 0.2	0.00 15.80 0.00	0.0 -0.4 0.0	0.00 15.70 0.00	0.0 -0.6 0.0	0.0 -0.2 0.0	48C68845-361

UNCORRECTED REFERENCE DATA

DATE TIME	O2 %	CO PPM	DATE TIME	O2 %	CO PPM
7/31/2006 14:54	13.53	0.25	7/31/2006 15:30	13.55	0.38
7/31/2006 14:55	13.54	0.28	7/31/2006 15:31	13.55	0.43
7/31/2006 14:56	13.54	0.30	7/31/2006 15:32	13.54	0.48
7/31/2006 14:57	13.54	0.28	7/31/2006 15:33	13.55	0.43
7/31/2006 14:58	13.54	0.20	7/31/2006 15:34	13.55	0.43
7/31/2006 14:59	13.55	0.30	7/31/2006 15:35	13.54	0.35
7/31/2006 15:00	13.55	0.28	7/31/2006 15:36	13.54	0.38
7/31/2006 15:01	13.55	0.30	7/31/2006 15:37	13.54	0.45
7/31/2006 15:02	13.55	0.25	7/31/2006 15:38	13.54	0.33
7/31/2006 15:03	13.56	0.40	7/31/2006 15:39	13.55	0.20
7/31/2006 15:04	13.56	0.35	7/31/2006 15:40	13.55	0.25
7/31/2006 15:05	13.56	0.43	7/31/2006 15:46	13.61	0.35
7/31/2006 15:06	13.56	0.38	7/31/2006 15:47	13.61	0.30
7/31/2006 15:07	13.56	0.30	7/31/2006 15:48	13.61	0.38
7/31/2006 15:08	13.56	0.30	7/31/2006 15:49	13.61	0.53
7/31/2006 15:09	13.56	0.25	7/31/2006 15:50	13.61	0.48
7/31/2006 15:10	13.56	0.40	7/31/2006 15:51	13.60	0.35
7/31/2006 15:11	13.56	0.30	7/31/2006 15:52	13.61	0.45
7/31/2006 15:12	13.55	0.13	7/31/2006 15:53	13.61	0.43
7/31/2006 15:13	13.55	0.38	7/31/2006 15:54	13.61	0.43
7/31/2006 15:14	13.55	0.40	7/31/2006 15:55	13.61	0.43
7/31/2006 15:20	13.56	0.30	7/31/2006 15:56	13.61	0.40
7/31/2006 15:21	13.55	0.82	7/31/2006 15:57	13.61	0.38
7/31/2006 15:22	13.55	0.00	7/31/2006 15:58	13.61	0.50
7/31/2006 15:23	13.54	0.05	7/31/2006 15:59	13.61	0.53
7/31/2006 15:24	13.54	0.10	7/31/2006 16:00	13.61	0.35
7/31/2006 15:25	13.55	0.40	7/31/2006 16:01	13.61	0.40
7/31/2006 15:26	13.55	0.45	7/31/2006 16:02	13.61	0.35
7/31/2006 15:27	13.55	0.33	7/31/2006 16:03	13.61	0.30
7/31/2006 15:28	13.55	0.00	7/31/2006 16:04	13.61	0.33
7/31/2006 15:29	13.55	0.40			

Resumed after RATA calibrations

MEAN ANALYZER VALUES

F Factor 8710 % O2 13.57  
Avg. CO ppmvd 0.35



JO KENNEDY GENERATING STATION  
KCT 7

LOAD: 167 MW  
FUEL: 100 % GAS  
DATE: 7/31/2006  
RUN: 3  
WET BULB: 78 °F  
DRY BULB: 86 °F  
RH: 62%

AVG. ADJUSTED CO ppmvd @ 15% O2	0.34
CORRECTED O2 %	13.68
CORRECTED CO ppmvd	0.42
CO LB/MBTU	0.0006

ANALYZER RESPONSE, SYSTEM BIAS AND SYSTEM DRIFT DATA

SPAN	CAL	TANK	ANALYZER	SYSTEM	SYSTEM	SYSTEM	ANALYZER
TING	GASES	VALUE	RESPONSE DIFFERENCE	%	BIAS	%	SERIAL #
			VALUE	SPAN	VALUE	SPAN	
25	PPM NOx	0.00	0.10	0.10	0.40	0.00	42CHLT2772-372
		11.60	11.60	0.00	0.00	0.00	
		21.10	20.90	-0.20	-0.80	11.60	
25	% O2	0.00	0.00	0.00	0.00	0.00	014208153
		12.50	12.50	0.00	0.00	12.50	
		22.50	22.50	0.00	0.00	12.50	
50	PPM CO	0.0	0.00	0.00	0.0	0.00	48C68845-381
		15.90	16.00	0.10	0.2	15.70	
		30.40	30.50	0.10	0.2	-0.6	

UNCORRECTED REFERENCE DATA

DATE	O2	CO	DATE	O2	CO
TIME	%	PPM	TIME	%	PPM
7/31/2006 16:16	13.68	0.25	7/31/2006 16:52	13.68	0.35
7/31/2006 16:17	13.68	0.45	7/31/2006 16:53	13.68	0.45
7/31/2006 16:18	13.68	0.38	7/31/2006 16:54	13.68	0.48
7/31/2006 16:19	13.68	0.38	7/31/2006 16:55	13.68	0.43
7/31/2006 16:20	13.68	0.48	7/31/2006 16:56	13.68	0.48
7/31/2006 16:21	13.69	0.45	7/31/2006 16:57	13.68	0.43
7/31/2006 16:22	13.68	0.40	7/31/2006 16:58	13.68	0.45
7/31/2006 16:23	13.68	0.43	7/31/2006 16:59	13.68	0.43
7/31/2006 16:24	13.69	0.38	7/31/2006 17:00	13.68	0.38
7/31/2006 16:25	13.69	0.35	7/31/2006 17:01	13.68	0.43
7/31/2006 16:26	13.69	0.43	7/31/2006 17:02	13.69	0.35
7/31/2006 16:27	13.69	0.30	7/31/2006 17:12	13.68	0.50
7/31/2006 16:28	13.69	0.35	7/31/2006 17:13	13.68	0.43
7/31/2006 16:29	13.69	0.43	7/31/2006 17:14	13.68	0.48
7/31/2006 16:30	13.69	0.38	7/31/2006 17:15	13.67	0.45
7/31/2006 16:31	13.69	0.45	7/31/2006 17:16	13.67	0.48
7/31/2006 16:32	13.68	0.38	7/31/2006 17:17	13.67	0.45
7/31/2006 16:33	13.69	0.43	7/31/2006 17:18	13.67	0.25
7/31/2006 16:34	13.68	0.48	7/31/2006 17:19	13.65	0.40
7/31/2006 16:35	13.68	0.43	7/31/2006 17:20	13.68	0.45
7/31/2006 16:36	13.69	0.45	7/31/2006 17:21	13.68	0.45
7/31/2006 16:42	13.67	0.48	7/31/2006 17:22	13.68	0.43
7/31/2006 16:43	13.68	0.50	7/31/2006 17:23	13.68	0.38
7/31/2006 16:44	13.68	0.40	7/31/2006 17:24	13.68	0.38
7/31/2006 16:45	13.68	0.40	7/31/2006 17:25	13.68	0.45
7/31/2006 16:46	13.68	0.48	7/31/2006 17:26	13.68	0.45
7/31/2006 16:47	13.68	0.43	7/31/2006 17:27	13.68	0.38
7/31/2006 16:48	13.68	0.35	7/31/2006 17:28	13.68	0.43
7/31/2006 16:49	13.68	0.43	7/31/2006 17:29	13.68	0.33
7/31/2006 16:50	13.68	0.43	7/31/2006 17:30	13.68	0.43
7/31/2006 16:51	13.68	0.25			

Resumed after RATA calibrations

MEAN ANALYZER VALUES

F Factor 8710 % O2 13.68  
Avg. CO ppmvd 0.41



## EXECUTIVE SUMMARY

On September 27, 2007, Coastal Air Consulting, Inc. conducted the Annual Compliance Test for Carbon Monoxide emissions and Relative Accuracy Test Audits on the NO<sub>x</sub> and O<sub>2</sub> continuous emission monitors at the JEA Kennedy Generating Station Combustion Turbine KCT-7. This testing was performed in order to satisfy specific testing requirements in the facilities permit as well as the requirements of 40 CFR Part 75 for CEMS operation.

The results are summarized in the table below:

**JEA KCT-7 COMPLIANCE**

PARAMETERS	TEST RESULTS	ALLOWABLE
Carbon Monoxide	0.54 ppm @ 15% O <sub>2</sub>	15 PPM @ 15% O <sub>2</sub>
Visible Emissions	0.00%	10% Opacity

**JEA KCT-7 RATA**

PARAMETERS	TEST RESULTS	ALLOWABLE ANNUAL	BIAS ADJUSTMENT
NO <sub>x</sub> (LB/MMBTU)	1.257%	7.5%	NB
NO <sub>x</sub> (PPM) @ 15% O <sub>2</sub>	1.762%	7.5%	NA
O <sub>2</sub> (%)	1.759%	7.5%	NA

The turbine was operating at base load and firing with natural gas during all testing. The test results demonstrated compliance at the time of testing with the applicable standards.

**JD KENNEDY GENERATING STATION  
KCT 7**

LOAD: 152 MW  
FUEL: 100 % GAS  
DATE: 9/27/2007  
RUN: 1  
WET BULB 74 °F  
DRY BULB 85 °F  
RH: 58%

AVG. ADJUSTED CO ppmvd @ 16% O2	0.44
CORRECTED O2 %	13.95
CORRECTED CO ppmvd	0.52
CO LB/MBTU	0.0010

**CALIBRATION ERROR, SYSTEM BIAS AND SYSTEM DRIFT DATA**

SPAN SETTING	CAL GASES	CERTIFIED GAS VALUE	ANALYZER VALUE	DIFFERENCE PPM	% SPAN	SYSTEM BIAS VALUE	% SPAN	SYSTEM BIAS VALUE	% SPAN	% DRIFT	ANALYZER SERIAL #
25	PPM NOx	0.00 12.40 22.60	0.00 12.40 22.50	0.00 0.00 -0.10	0.00 0.00 -0.44	0.00 12.50 0.00	0.00 0.44 0.00	0.00 12.60 0.00	0.00 0.89 0.00	0.00 0.44 0.00	42 CHL 72772-372
25	% O2	0.00 12.50 22.50	0.00 12.50 22.50	0.00 0.00 0.00	0.00 0.00 0.00	0.00 12.50 0.00	0.00 0.00 0.00	0.00 12.50 0.00	0.00 0.00 0.00	0.00 0.00 0.00	1420B /937
75	PPM CO	0.0 30.20 60.20	0.00 30.00 60.10	0.00 -0.20 -0.10	0.0 -0.3 -0.2	0.00 30.10 0.0	0.0 0.2 0.0	0.00 30.00 0.0	0.0 0.0 0.0	0.0 -0.2 0.0	48C 68845-361

**UNCORRECTED REFERENCE DATA**

DATE & TIME	O2 %	CO PPM	DATE & TIME	O2 %	CO PPM
9/27/2007 15:55	13.92	0.50	9/27/2007 16:34	13.94	0.40
9/27/2007 15:56	13.92	0.53	9/27/2007 16:35	13.93	0.43
9/27/2007 15:57	13.92	0.55	9/27/2007 16:36	13.95	0.35
9/27/2007 15:58	13.92	0.53	9/27/2007 16:37	13.95	0.33
9/27/2007 15:59	13.92	0.58	9/27/2007 16:38	13.95	0.38
9/27/2007 16:00	13.92	0.48	9/27/2007 16:39	13.95	0.45
9/27/2007 16:01	13.92	0.58	9/27/2007 16:40	13.95	0.50
9/27/2007 16:02	13.92	0.55	9/27/2007 16:41	13.95	0.40
9/27/2007 16:03	13.93	0.55	9/27/2007 16:42	13.95	0.40
9/27/2007 16:04	13.93	0.60	9/27/2007 16:43	13.95	0.35
9/27/2007 16:05	13.94	0.45	9/27/2007 16:44	13.95	0.33
9/27/2007 16:06	13.93	0.45	9/27/2007 16:55	13.98	0.50
9/27/2007 16:07	13.95	0.45	9/27/2007 16:56	13.99	0.65
9/27/2007 16:08	13.95	0.45	9/27/2007 16:57	13.97	0.68
9/27/2007 16:09	13.95	0.58	9/27/2007 16:58	13.98	0.65
9/27/2007 16:10	13.95	0.50	9/27/2007 16:59	13.98	0.68
9/27/2007 16:11	13.95	0.48	9/27/2007 17:00	13.95	0.70
9/27/2007 16:12	13.95	0.45	9/27/2007 17:01	13.97	0.60
9/27/2007 16:13	13.95	0.48	9/27/2007 17:02	13.99	0.73
9/27/2007 16:14	13.95	0.40	9/27/2007 17:03	13.96	0.78
9/27/2007 16:15	13.95	0.40	9/27/2007 17:04	13.96	0.73
9/27/2007 16:24	13.98	0.25	9/27/2007 17:05	13.96	0.68
9/27/2007 16:25	13.99	0.48	9/27/2007 17:06	13.97	0.68
9/27/2007 16:26	13.99	0.45	9/27/2007 17:07	13.97	0.73
9/27/2007 16:27	13.92	0.40	9/27/2007 17:08	13.97	0.70
9/27/2007 16:28	13.92	0.38	9/27/2007 17:09	13.98	0.68
9/27/2007 16:29	13.92	0.43	9/27/2007 17:10	13.98	0.68
9/27/2007 16:30	13.92	0.38	9/27/2007 17:11	13.98	0.58
9/27/2007 16:31	13.92	0.40	9/27/2007 17:12	13.97	0.65
9/27/2007 16:32	13.93	0.40	9/27/2007 17:13	13.98	0.60
9/27/2007 16:33	13.93	0.40			

**MEAN ANALYZER VALUES**

F Factor	8710	% O2	13.95
		Avg. CO ppmvd	0.52

JO KENNEDY GENERATING STATION  
KCT 7

LOAD: 153 MW  
FUEL: 100 % GAS  
DATE: 9/27/2007  
RUN: 2  
WET BULB 75 °F  
DRY BULB 82 °F  
RH: 72%

AVG. ADJUSTED CO ppmvd @ 15% O2	0.57
CORRECTED O2 %	13.94
CORRECTED CO ppmvd	0.67
CO LB/MBTU	0.0013

CALIBRATION ERROR, SYSTEM BIAS AND SYSTEM DRIFT DATA

SPAN SETTING	CAL GASES	CERTIFIED GAS VALUE	ANALYZER DIFFERENCE VALUE	PPM	% SPAN	SYSTEM BIAS VALUE	% SPAN	SYSTEM BIAS VALUE	% SPAN	% DRIFT	ANALYZER SERIAL #
25	PPM NOx	0.00 12.40 22.60	0.00 12.40 22.50	0.00 0.00 -0.10	0.00 0.00 -0.44	0.00 12.60 12.60	0.00 0.89 0.89	0.00 12.50 12.50	0.00 0.44 0.44	0.00 -0.44 -0.44	42 CHL 72772-372
25	% O2	0.00 12.50 22.50	0.00 12.50 22.50	0.00 0.00 0.00	0.00 0.00 0.00	0.00 12.50 12.50	0.00 0.00 0.00	0.10 12.50 12.50	0.44 0.00 0.00	0.44 0.00 0.00	14208 /837
75	PPM CO	0.00 30.20 60.20	0.00 30.00 60.10	0.00 -0.20 -0.10	0.0 -0.3 -0.2	0.00 30.00 30.00	0.0 0.0 0.0	0.00 30.00 30.00	0.0 0.0 0.0	0.0 0.0 0.0	48C 68845-361

UNCORRECTED REFERENCE DATA

DATE & TIME	O2 %	CO PPM	DATE & TIME	O2 %	CO PPM
9/27/2007 17:26	13.91	0.70	9/27/2007 18:04	13.97	0.68
9/27/2007 17:27	13.93	0.68	9/27/2007 18:05	13.96	0.60
9/27/2007 17:28	13.94	0.62	9/27/2007 18:06	13.96	0.62
9/27/2007 17:29	13.95	0.68	9/27/2007 18:07	13.96	0.60
9/27/2007 17:30	13.96	0.78	9/27/2007 18:08	13.96	0.58
9/27/2007 17:31	13.96	0.73	9/27/2007 18:09	13.96	0.62
9/27/2007 17:32	13.96	0.78	9/27/2007 18:10	13.96	0.65
9/27/2007 17:33	13.97	0.65	9/27/2007 18:11	13.96	0.62
9/27/2007 17:34	13.98	0.55	9/27/2007 18:12	13.96	0.65
9/27/2007 17:35	13.98	0.55	9/27/2007 18:13	13.96	0.65
9/27/2007 17:36	13.98	0.58	9/27/2007 18:14	13.96	0.73
9/27/2007 17:37	13.98	0.53	9/27/2007 18:25	13.78	0.65
9/27/2007 17:38	13.98	0.55	9/27/2007 18:26	13.84	0.73
9/27/2007 17:39	13.98	0.50	9/27/2007 18:27	13.86	0.68
9/27/2007 17:40	13.98	0.55	9/27/2007 18:28	13.87	0.70
9/27/2007 17:41	13.97	0.58	9/27/2007 18:29	13.88	0.65
9/27/2007 17:42	13.97	0.58	9/27/2007 18:30	13.88	0.70
9/27/2007 17:43	13.96	0.68	9/27/2007 18:31	13.89	0.73
9/27/2007 17:44	13.97	0.62	9/27/2007 18:32	13.89	0.73
9/27/2007 17:45	13.97	0.62	9/27/2007 18:33	13.89	0.73
9/27/2007 17:46	13.98	0.90	9/27/2007 18:34	13.89	0.78
9/27/2007 17:54	13.94	0.62	9/27/2007 18:35	13.89	0.70
9/27/2007 17:55	13.94	0.60	9/27/2007 18:36	13.89	0.70
9/27/2007 17:56	13.94	0.62	9/27/2007 18:37	13.89	0.75
9/27/2007 17:57	13.95	0.60	9/27/2007 18:38	13.89	0.75
9/27/2007 17:58	13.96	0.65	9/27/2007 18:39	13.89	0.70
9/27/2007 17:59	13.96	0.68	9/27/2007 18:40	13.90	0.73
9/27/2007 18:00	13.97	0.65	9/27/2007 18:41	13.90	0.66
9/27/2007 18:01	13.97	0.62	9/27/2007 18:42	13.89	0.75
9/27/2007 18:02	13.97	0.73	9/27/2007 18:43	13.89	0.75
9/27/2007 18:03	13.98	0.73			

MEAN ANALYZER VALUES

F Factor	6710	% O2	13.94
		Avg. CO ppmvd	0.66

JO KENNEDY GENERATING STATION  
KCT 7

LOAD: 154 MW  
FUEL: 100 % GAS  
DATE: 9/27/2007  
RUN: 3  
WET BULB 78 °F  
DRY BULB 80 °F  
RH: 82%

AVG. ADJUSTED CO ppmvd @ 15% O2	0.82
CORRECTED O2 %	13.84
CORRECTED CO ppmvd	0.74
CO LB/MBTU	0.0014

CALIBRATION ERROR, SYSTEM BIAS AND SYSTEM DRIFT DATA

SPAN SETTING	CAL GASES	CERTIFIED GAS VALUE	ANALYZER VALUE	DIFFERENCE PPM	% SPAN	SYSTEM BIAS VALUE	% SPAN	SYSTEM BIAS VALUE	% SPAN	% DRIFT	ANALYZER SERIAL #
25	PPM NOx	0.00 12.40 22.60	0.00 12.40 22.50	0.00 0.00 -0.10	0.00 0.00 -0.44	0.00 12.50 0.00	0.00 0.44 0.00	0.00 12.50 0.00	0.00 0.44 0.00	0.00 0.00 0.00	42 CHL 72772-372
25	% O2	0.00 12.50 22.50	0.00 12.50 22.50	0.00 0.00 0.00	0.00 0.00 0.00	0.10 12.50 0.00	0.44 0.00 0.00	0.10 12.50 0.00	0.44 0.00 0.00	0.00 0.00 0.00	1420B /937
75	PPM CO	0.00 30.20 60.20	0.00 30.00 60.10	0.00 -0.20 -0.10	0.0 -0.3 -0.2	0.00 30.00 0.0	0.0 0.0 0.0	0.20 30.02 0.0	0.3 0.0 0.0	0.3 0.0 0.0	48C 68845-361

UNCORRECTED REFERENCE DATA

DATE & TIME	O2 %	CO PPM	DATE & TIME	O2 %	CO PPM
9/27/2007 18:53	13.86	0.75	9/27/2007 19:31	13.81	0.82
9/27/2007 18:54	13.87	0.82	9/27/2007 19:32	13.81	0.82
9/27/2007 18:55	13.88	0.82	9/27/2007 19:33	13.81	0.82
9/27/2007 18:56	13.88	0.80	9/27/2007 19:34	13.81	0.93
9/27/2007 18:57	13.88	0.80	9/27/2007 19:35	13.81	0.85
9/27/2007 18:58	13.89	0.87	9/27/2007 19:36	13.81	0.78
9/27/2007 18:59	13.89	0.87	9/27/2007 19:37	13.81	0.85
9/27/2007 19:00	13.89	0.90	9/27/2007 19:38	13.81	0.85
9/27/2007 19:01	13.89	0.85	9/27/2007 19:39	13.81	0.80
9/27/2007 19:02	13.89	0.87	9/27/2007 19:40	13.81	0.93
9/27/2007 19:03	13.89	0.82	9/27/2007 19:41	13.81	0.90
9/27/2007 19:04	13.89	0.85	9/27/2007 19:49	13.81	0.75
9/27/2007 19:05	13.86	0.78	9/27/2007 19:50	13.81	0.73
9/27/2007 19:06	13.84	0.80	9/27/2007 19:51	13.82	0.73
9/27/2007 19:07	13.84	0.80	9/27/2007 19:52	13.82	0.75
9/27/2007 19:08	13.84	0.87	9/27/2007 19:53	13.81	0.73
9/27/2007 19:09	13.83	0.98	9/27/2007 19:54	13.82	0.78
9/27/2007 19:10	13.83	0.90	9/27/2007 19:55	13.82	0.75
9/27/2007 19:11	13.83	0.82	9/27/2007 19:56	13.83	0.82
9/27/2007 19:12	13.82	0.82	9/27/2007 19:57	13.82	0.80
9/27/2007 19:13	13.82	1.08	9/27/2007 19:58	13.82	0.78
9/27/2007 19:21	13.83	1.03	9/27/2007 19:59	13.82	0.82
9/27/2007 19:22	13.83	0.85	9/27/2007 20:00	13.82	0.85
9/27/2007 19:23	13.82	0.90	9/27/2007 20:01	13.82	0.82
9/27/2007 19:24	13.83	0.90	9/27/2007 20:02	13.82	0.80
9/27/2007 19:25	13.83	0.85	9/27/2007 20:03	13.82	0.73
9/27/2007 19:26	13.83	0.90	9/27/2007 20:04	13.82	0.85
9/27/2007 19:27	13.83	0.82	9/27/2007 20:05	13.82	0.78
9/27/2007 19:28	13.83	0.85	9/27/2007 20:06	13.83	0.75
9/27/2007 19:29	13.83	0.82	9/27/2007 20:07	13.82	0.70
9/27/2007 19:30	13.81	0.87			

MEAN ANALYZER VALUES

F Factor	8710	% O2	13.83
		Avg. CO ppmvd	0.83

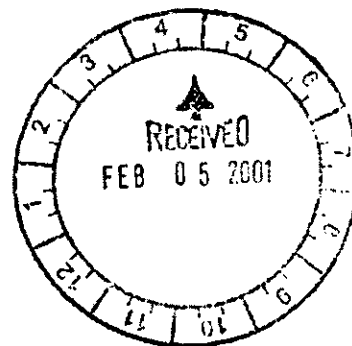


**SOURCE TEST REPORT**

**JACKSONVILLE ELECTRIC AUTHORITY  
KENNEDY GENERATING STATION  
Jacksonville, Florida**

**COMBUSTION TURBINE KCT7  
NOx EMISSIONS  
(Fired on No.2 Fuel Oil)**

**December, 2000**



**Prepared By:**

**Technical Services, Inc.  
Jacksonville, Florida 32206  
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*Harvey C. Gray*  
**Harvey C. Gray**



## RESULTS and DISCUSSION

An Executive Summary of the results of the tests for NOx, CO, VOC and Visible Emissions from Combustion Turbine KCT 7 are presented below.

A more comprehensive summary of the data is contained in Tables I in Tables I through III following. Unit was fired with fuel oil for tests.

### EXECUTIVE SUMMARY Emissions Tests December 20 - 21, 2000 Combustion Turbine KCT 7

Species	Allowable Emissions	Measured Emissions
Nitrogen Oxides, NOx:	42 PPM at 15% O2	29.82 PPM @ 15% O2
	42 PPM (at ISO Conditions)	29.73 PPM @ ISO Conditions
	318 Lbs/Hr	253.17 Lbs/Hr
Carbon Monoxide	20 PPM	2.08 PPM
	97 Lbs/Hr	7.26 Lbs/Hr
Volatile Organic Compounds (VOC)	3.5 PPM	1.11 PPM (as Propane)
	19 Lbs/Hr	6.67 Lbs/Hr (as Propane)
Sulfur Dioxide	98 Lbs/Hr	0.00 Lbs/Hr (Calculated from fuel analysis)

	Allowable Emissions (VISIBLE EMISSIONS)	Measured Emissions
RUN 1	20 % OPACITY	0.0 % OPACITY
RUN 2		0.0 % OPACITY
RUN 3		0.0 % OPACITY
AVERAGE		

This Unit is in compliance with emissions limitations.

# TECHNICAL SERVICES INC.

TABLE III

## CARBON MONOXIDE EMISSIONS SUMMARY COMBUSTION TURBINE KCT7

JACKSONVILLE ELECTRIC AUTHORITY  
KENNEDY GENERATING STATION  
JACKSONVILLE, FLORIDA

DATE	RUN No.	TIME PERIOD	LEVEL	CO PPM	VOLUMETRIC FLOW SCFMD	OXYGEN %	CO EMISSIONS	
							LBS/DSCF	LB/HR
12/20/00	1	1212 - 1316	MAX	2.69	792275	12.25	1.959E-07	9.31
			MIN	1.58			1.153E-07	5.48
			AVG	2.07			1.505E-07	7.15
12/20/00	2	1335 - 1439	MAX	3.26	804017	12.20	2.374E-07	11.45
			MIN	1.57			1.139E-07	5.49
			AVG	2.17			1.577E-07	7.61
12/21/00	3	0902 - 1006	MAX	2.22	803933	12.02	1.614E-07	7.79
			MIN	1.71			1.243E-07	6.00
			AVG	2.00			1.455E-07	7.02
			MEAN	2.08	800075.0	12.16	1.512E-07	7.26

ppm - Parts per million by volume

\* Mean determined as arithmetic average of the average results for each of the runs



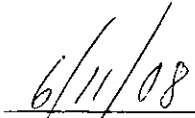
$$\text{LBS/HR} = 7.275\text{E-08} \times \text{PPM} \times \text{SCFMD} \times 60$$

## RAI 6 – Ancillary Equipment Application Forms

## APPLICATION INFORMATION

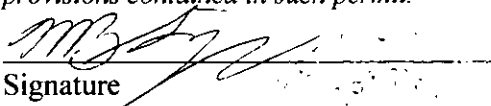
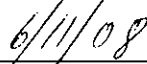
### Owner/Authorized Representative Statement

**Complete if applying for an air construction permit or an initial FESOP.**

1. Owner/Authorized Representative Name : Mr. James M. Chansler, P.E., D.P.A., Chief Operating Officer
2. Owner/Authorized Representative Mailing Address... Organization/Firm: JEA Street Address: 21 West Church Street City: Jacksonville State: FL Zip Code: 32202
3. Owner/Authorized Representative Telephone Numbers... Telephone: (904) 665-4433 ext. Fax: (904) 665-7990
4. Owner/Authorized Representative Email Address:
5. Owner/Authorized Representative Statement: <i>I, the undersigned, am the owner or authorized representative of the corporation, partnership, or other legal entity submitting this air permit application. To the best of my knowledge, the statements made in this application are true, accurate and complete, and any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department.</i>     Signature Date

## APPLICATION INFORMATION

### Professional Engineer Certification

1. Professional Engineer Name: N. Bert Gianazza Registration Number: 38640
2. Professional Engineer Mailing Address... Organization/Firm: JEA Street Address: 21 West Church Street City: Jacksonville State: FL Zip Code: 32202
3. Professional Engineer Telephone Numbers... Telephone: (904) 665-6247 ext. Fax: (904) 665-7376
4. Professional Engineer Email Address: giannb@jea.com
5. Professional Engineer Statement: <i>I, the undersigned, hereby certify, except as particularly noted herein*, that:</i> <i>(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</i> <i>(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.</i> <i>(3) If the purpose of this application is to obtain a Title V air operation permit (check here <input type="checkbox"/> , if so), I further certify that each emissions unit described in this application for air permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance plan and schedule is submitted with this application.</i> <i>(4) If the purpose of this application is to obtain an air construction permit (check here <input checked="" type="checkbox"/> , if so) or concurrently process and obtain an air construction permit and a Title V air operation permit revision or renewal for one or more proposed new or modified emissions units (check here <input type="checkbox"/> , 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.</i> <i>(5) If the purpose of this application is to obtain an initial air operation permit or operation permit revision or renewal for one or more newly constructed or modified emissions units (check here <input type="checkbox"/> , 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.</i>  Signature (seal)  Date

\* Attach any exception to certification statement.

## APPLICATION INFORMATION

### Scope of Application

Emissions Unit ID Number	Description of Emissions Unit	Air Permit Type	Air Permit Processing Fee
EU03	350 BHP Emergency Diesel Fire Pump	AC1A	NA
EU04	1,500 kW Emergency Diesel Engine Generator	AC1A	NA

### Application Processing Fee

Check one: ☐ Attached - Amount: \_\_\_\_\_ ☒ Not Applicable

**EMISSIONS UNIT INFORMATION**

Section [1] of [2]

**A. GENERAL EMISSIONS UNIT INFORMATION****Title V Air Operation Permit Emissions Unit Classification**

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)

☐ 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.

**Emissions Unit Description and Status**

1. Type of Emissions Unit Addressed in this Section: (Check one)

☒ 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. Description of Emissions Unit Addressed in this Section: 350 BHP Emergency Diesel Fire Pump

3. Emissions Unit Identification Number:

4. Emissions Unit Status Code:  
C

5. Commence Construction Date:

6. Initial Startup Date:

7. Emissions Unit Major Group SIC Code:  
49

8. Acid Rain Unit?  
☐ Yes  
☒ No

9. Package Unit:

Manufacturer: TBD

Model Number: TBD

10. Generator Nameplate Rating:

11. Emissions Unit Comment:

The emergency diesel fire pump along with the emergency diesel generator, will combust no more than 32,000 gallons per year of diesel. This emission unit is categorically exempt in accordance with 62-210.300(3)(a) 36.

**EMISSIONS UNIT INFORMATION**

Section [1] of [2]

**Emissions Unit Control Equipment**

1. Control Equipment/Method(s) Description:

2. Control Device or Method Code(s):



**EMISSIONS UNIT INFORMATION**

Section [1] of [2]

**B. EMISSIONS UNIT CAPACITY INFORMATION**

(Optional for unregulated emissions units.)

**Emissions Unit Operating Capacity and Schedule**

1. Maximum Process or Throughput Rate:
2. Maximum Production Rate: 350 BHP (approximate)
3. Maximum Heat Input Rate:
4. Maximum Incineration Rate: pounds/hr tons/day
5. Requested Maximum Operating Schedule:
6. Operating Capacity/Schedule Comment:  The 350 bhp emergency diesel fire pump along with the emergency diesel engine will not use more than 32,000 gallons per year of ULSFO. The fire pump will fire ULSFO. Annual emissions from the emergency diesel fire pump are based on 7,000 gallons per year of diesel fuel and 100 percent load, which corresponds to approximately 400 hours per year of operation. Because a specific manufacturer and model has not been determined, the maximum production rate provided is an approximate value.

**EMISSIONS UNIT INFORMATION**

Section [1] of [2]

**C. EMISSION POINT (STACK/VENT) INFORMATION**  
(Optional for unregulated emissions units.)**Emission Point Description and Type**

1. Identification of Point on Plot Plan or Flow Diagram: Fire Pump Building		2. Emission Point Type Code: 1	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking:			
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:			
5. Discharge Type Code: V		6. Stack Height: 15.17	
		7. Exit Diameter: 0.42	
8. Exit Temperature: 806°F		9. Actual Volumetric Flow Rate: 2,345 acfm	
		10. Water Vapor: %	
11. Maximum Dry Standard Flow Rate:		12. Nonstack Emission Point Height:	
13. Emission Point UTM Coordinates... Zone: 17 East (km): 450.141 North (km): 3336.565		14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
15. Emission Point Comment: The above information is based on preliminary vendor information and represents the expected approximate emission unit parameters.			

**EMISSIONS UNIT INFORMATION**

Section [1] of [2]

**D. SEGMENT (PROCESS/FUEL) INFORMATION****Segment Description and Rate:** Segment 1 of 1

1. Segment Description (Process/Fuel Type): ULSFO used in the emergency diesel fire pump		
2. Source Classification Code (SCC): 20100301		3. SCC Units: Thousand Gallons Burned
4. Maximum Hourly Rate: 0.017	5. Maximum Annual Rate: 7	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: 0.0015	8. Maximum % Ash:	9. Million Btu per SCC Unit: 137 (HHV)
10. Segment Comment: The 350 bhp emergency diesel fire pump along with the emergency diesel engine will not use more than 32,000 gallons per year of ULSFO. Annual emissions from the emergency diesel fire pump are based on 7,000 gallons per year of diesel fuel and 100 percent load, which corresponds to approximately 400 hours per year of operation. The above information is based on preliminary vendor information and represents the expected approximate emission unit parameters.		

**Segment Description and Rate:** Segment \_ of \_

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

**EMISSIONS UNIT INFORMATION**

Section [1] of [2]

**E. EMISSIONS UNIT POLLUTANTS****List of Pollutants Emitted by Emissions Unit**

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
CO			EL
NOX			EL
PM			EL
PM10			NS
SO2			NS
VOC			EL

**EMISSIONS UNIT INFORMATION**

Section [1] of [2] Page

**POLLUTANT DETAIL INFORMATION**

[1] of [10]

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

(Optional for unregulated emissions units.)

**Potential/Estimated Fugitive Emissions**

**Complete Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.**

1. Pollutant Emitted: CO	2. Total Percent Efficiency of Control:
3. Potential Emissions: 0.37 lb/hour      7.41 E-02 tons/year	4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
5. Range of Estimated Fugitive Emissions (as applicable): to   tons/year	
6. Emission Factor:  Reference: Vendor Data	7. Emissions Method Code: 5
8. Calculation of Emissions: Potential emissions are based on vendor data. The maximum hourly CO emission rate is 0.37 lb/hour. The maximum annual potential CO emissions are based on operating 400 hours per year. Annual emissions = 0.37 lb/hr x 400 hours/year x 1 ton/2,000 lb = 7.41 E-02 tons/year	
9. Pollutant Potential/Estimated Fugitive Emissions Comment: The potential emissions are estimates based on preliminary vendor data for a 2008 model year fire pump engine. The potential emissions are given for informational purposes and do not represent limits.	

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
ALLOWABLE EMISSIONS**

**Complete Subsection F2 the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.**

**Allowable Emissions** Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: RULE-NSPS IIII	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 2.6 g/bhp-hr	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance: Manufacturer certification	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_ of \_\_

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

**Allowable Emissions** Allowable Emissions \_\_ of \_\_

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

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

(Optional for unregulated emissions units.)

**Potential/Estimated Fugitive Emissions**

**Complete Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.**

1. Pollutant Emitted: NOX		2. Total Percent Efficiency of Control:	
3. Potential Emissions: 2.83 lb/hour      5.66 E-01 tons/year		4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to   tons/year			
6. Emission Factor:  Reference: Vendor Data		7. Emissions Method Code: 5	
8. Calculation of Emissions: Potential emissions are based on vendor data. The maximum hourly NO <sub>x</sub> emission rate is 2.83 lb/hour. The maximum annual potential NO <sub>x</sub> emissions are based on operating 400 hours per year. Annual emissions = 2.83 lb/hr x 400 hours/year x 1 ton/2,000 lb = 5.66 E-01 tons/year			
9. Pollutant Potential/Estimated Fugitive Emissions Comment: The potential emissions are given for informational purposes and do not represent limits.			

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
ALLOWABLE EMISSIONS**

**Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.**

**Allowable Emissions** Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: RULE – NSPS Subpart IIII	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 7.8 g/hp-hr (NOX + NMHC) for 2008 model year engines	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance: Manufacturer certification	
6. Allowable Emissions Comment (Description of Operating Method): Based on the NSPS, compliance will be certified by the manufacturer and no emissions testing is required.	

**Allowable Emissions** Allowable Emissions    of   

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



**EMISSIONS UNIT INFORMATION**

Section [1] of [2]

**POLLUTANT DETAIL INFORMATION**

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

(Optional for unregulated emissions units.)

**Potential/Estimated Fugitive Emissions**

**Complete Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.**

1. Pollutant Emitted: PM/PM10		2. Total Percent Efficiency of Control:	
3. Potential Emissions: 0.16 lb/hour      3.24 E-02 tons/year		4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to   tons/year			
6. Emission Factor:  Reference: Vendor Data		7. Emissions Method Code: 5	
8. Calculation of Emissions: Potential emissions are based on vendor data. The maximum hourly PM/PM10 emission rate is 0.16 lb/hour. The maximum annual potential PM emissions are based on operating 400 hours per year. Annual emissions = 0.16 lb/hr x 400 hours/year x 1 ton/2,000 lb = 3.24 E-02 tons/year			
9. Pollutant Potential/Estimated Fugitive Emissions Comment: The potential emissions are estimates based on preliminary vendor data. The potential emissions are given for informational purposes and do not represent limits.			

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
ALLOWABLE EMISSIONS**

**Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.**

**Allowable Emissions** Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: RULE – NSPS Subpart III	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 0.40 g/hp-hr	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance: Manufacturer certification	
6. Allowable Emissions Comment (Description of Operating Method): Based on the NSPS, compliance will be certified by the manufacturer and no emissions testing is required.	

**Allowable Emissions** Allowable Emissions    of   

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

**Allowable Emissions** Allowable Emissions    of   

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

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

(Optional for unregulated emissions units.)

**Potential/Estimated Fugitive Emissions**

**Complete Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.**

1. Pollutant Emitted: SO <sub>2</sub>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: 0.0036 lb/hour    7.18 E-04 tons/year		4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to    tons/year			
6. Emission Factor:  Reference: Vendor Data		7. Emissions Method Code: 5	
8. Calculation of Emissions: Potential emissions are based on vendor data using fuel oil with 0.0015 percent sulfur content. The maximum hourly SO <sub>2</sub> emission rate is 0.0036 lb/hour. The maximum annual potential SO <sub>2</sub> emissions are based on operating 400 hours per year. Annual emissions = 0.0036 lb/hr x 400 hours/year x 1 ton/2,000 lb = 7.18 E-04 tons/year			
9. Pollutant Potential/Estimated Fugitive Emissions Comment: Potential emissions shown in Fields 3 and 8 are based on using fuel oil with 0.0015 percent sulfur content. The potential emissions are estimates based on preliminary vendor data. The potential emissions are given for informational purposes and do not represent limits.			

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
ALLOWABLE EMISSIONS**

**Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.**

**Allowable Emissions** Allowable Emissions \_ of

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

**Allowable Emissions** Allowable Emissions \_ of

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

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

(Optional for unregulated emissions units.)

**Potential/Estimated Fugitive Emissions**

**Complete Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.**

1. Pollutant Emitted: VOC		2. Total Percent Efficiency of Control:	
3. Potential Emissions: 0.40 lb/hour      8.02 E-02 tons/year		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year			
6. Emission Factor: Reference: Vendor Data		7. Emissions Method Code: 5	
8. Calculation of Emissions: Potential emissions are based on vendor data. The maximum hourly VOC emission rate is 0.40 lb/hour. The maximum annual potential VOC emissions are based on operating 400 hours per year. Annual emissions = 0.40 lb/hr x 400 hours/year x 1 ton/2,000 lbs = 8.02 E-02 tons/year			
9. Pollutant Potential/Estimated Fugitive Emissions Comment: The potential emissions are estimates based on preliminary vendor data. The potential emissions are given for informational purposes and do not represent limits.			

**EMISSIONS UNIT INFORMATION**

Section [1] of [2]

**POLLUTANT DETAIL INFORMATION**

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**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
ALLOWABLE EMISSIONS**

**Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.**

**Allowable Emissions** Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: RULE- NSPS Subpart IIII	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 7.8 g/hp-hr (NOX + NMHC)	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance: Manufacturer certification	
6. Allowable Emissions Comment (Description of Operating Method): Based on the NSPS, compliance will be certified by the manufacturer and no emissions testing is required.	

**Allowable Emissions** Allowable Emissions    of   

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

**Allowable Emissions** Allowable Emissions    of   

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

**EMISSIONS UNIT INFORMATION**

Section [1] of [2]

**G. VISIBLE EMISSIONS INFORMATION**

**Complete Subsection G if this emissions unit is or would be subject to a unit-specific visible emissions limitation.**

**Visible Emissions Limitation:** Visible Emissions Limitation \_\_\_ of \_\_\_

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: <input type="checkbox"/> Rule <input type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions:                      %      Exceptional Conditions:                      % Maximum Period of Excess Opacity Allowed:                      min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment:	

**Visible Emissions Limitation:** Visible Emissions Limitation \_\_\_ of \_\_\_

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: <input type="checkbox"/> Rule <input type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions:                      %      Exceptional Conditions:                      % Maximum Period of Excess Opacity Allowed:                      min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment:	

**EMISSIONS UNIT INFORMATION**

Section [1] of [2]

**H. CONTINUOUS MONITOR INFORMATION**

**Complete Subsection H if this emissions unit is or would be subject to continuous monitoring.**

**Continuous Monitoring System:** Continuous Monitor \_\_ of

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	<input type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

**Continuous Monitoring System:** Continuous Monitor \_\_ of

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	<input type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	



**EMISSIONS UNIT INFORMATION**

Section [1] of [2]

**I. EMISSIONS UNIT ADDITIONAL INFORMATION****Additional Requirements for All Applications, Except as Otherwise Stated**

1. Process Flow Diagram (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date <u>April 2008</u>
2. Fuel Analysis or Specification (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date <u>April 2008</u>
3. Detailed Description of Control Equipment (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date _____
4. Procedures for Startup and Shutdown (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date _____ <input checked="" type="checkbox"/> Not Applicable (construction application)
5. Operation and Maintenance Plan (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date <u>April 2008</u> <input type="checkbox"/> Not Applicable
6. Compliance Demonstration Reports/Records <input type="checkbox"/> Attached, Document ID: _____ Test Date(s)/Pollutant(s) Tested: _____ <input type="checkbox"/> Previously Submitted, Date: _____ Test Date(s)/Pollutant(s) Tested: _____  <input type="checkbox"/> To be Submitted, Date (if known): _____ Test Date(s)/Pollutant(s) Tested: _____  <input checked="" type="checkbox"/> Not Applicable  Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.
7. Other Information Required by Rule or Statute <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable

**Section [1] of [2]**

1. Control Technology Review and Analysis (Rules 62-212.400(6) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e))  
☒ Attached, Document ID: See Section 3 of Application Support Document
2. Good Engineering Practice Stack Height Analysis (Rule 62-212.400(5)(h)6., F.A.C., and Rule 62-212.500(4)(f), F.A.C.)  
☒ Attached, Document ID: See Section 4 of Application Support Document
3. Description of Stack Sampling Facilities (Required for proposed new stack sampling facilities only)  
☐ Attached, Document ID: \_\_\_\_\_ ☒ Not Applicable

1. Identification of Applicable Requirements:  
☐ Attached, Document ID: \_\_\_\_\_

2. Compliance Assurance Monitoring:  
☐ Attached, Document ID: \_\_\_\_\_ ☐ Not Applicable

3. Alternative Methods of Operation:  
☐ Attached, Document ID: \_\_\_\_\_ ☐ Not Applicable

4. Alternative Modes of Operation (Emissions Trading):  
☐ Attached, Document ID: \_\_\_\_\_ ☐ Not Applicable

**EMISSIONS UNIT INFORMATION**

Section [2] of [2]

**A. GENERAL EMISSIONS UNIT INFORMATION****Title V Air Operation Permit Emissions Unit Classification**

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)

☐ 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.

**Emissions Unit Description and Status**

1. Type of Emissions Unit Addressed in this Section: (Check one)

☒ 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. Description of Emissions Unit Addressed in this Section: Emergency Diesel Engine Generator

3. Emissions Unit Identification Number:

4. Emissions Unit Status Code:  
C

5. Commence Construction Date:

6. Initial Startup Date:

7. Emissions Unit Major Group SIC Code:  
49

8. Acid Rain Unit?  
☐ Yes  
☒ No

9. Package Unit:

Manufacturer: TBD

Model Number: TBD

10. Generator Nameplate Rating: 1,500 kW standby rating (2,206 BHP)

11. Emissions Unit Comment: The emergency diesel generator along with the emergency diesel fire pump, will combust no more that 32,000 gallons per year of diesel. This emission unit is categorically exempt in accordance with 62-210.300(3)(a) 35.

**EMISSIONS UNIT INFORMATION**

Section [2] of [2]

**Emissions Unit Control Equipment**

1. Control Equipment/Method(s) Description:

2. Control Device or Method Code(s):

**EMISSIONS UNIT INFORMATION**

Section [2] of [2]

**B. EMISSIONS UNIT CAPACITY INFORMATION**

(Optional for unregulated emissions units.)

**Emissions Unit Operating Capacity and Schedule**

1. Maximum Process or Throughput Rate:
2. Maximum Production Rate: 2,206 BHP (approximate)
3. Maximum Heat Input Rate:
4. Maximum Incineration Rate: pounds/hr tons/day
5. Requested Maximum Operating Schedule:
6. Operating Capacity/Schedule Comment: The 1,500 kilowatt (kW) emergency diesel engine generator along with the emergency diesel fire pump will not use more than 32,000 gallons per year of diesel. The emergency diesel engine generator will fire ULSFO. Annual emissions from the emergency diesel engine generator are based on 25,000 gallons per year of diesel fuel and 100 percent load, which corresponds to approximately 230 hours per year of operation. Because this is emergency equipment, a maximum operating schedule is not requested. Because a specific manufacturer and model has not been determined, the maximum production rate provided is an approximate value.

**EMISSIONS UNIT INFORMATION**

Section [2] of [2]

**C. EMISSION POINT (STACK/VENT) INFORMATION****(Optional for unregulated emissions units.)****Emission Point Description and Type**

1. Identification of Point on Plot Plan or Flow Diagram: Diesel Generator		2. Emission Point Type Code: 1	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking:			
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:			
5. Discharge Type Code: V	6. Stack Height: 24 feet	7. Exit Diameter: 0.67 feet	
8. Exit Temperature: 762.8°F	9. Actual Volumetric Flow Rate: 11,071 acfm	10. Water Vapor: %	
11. Maximum Dry Standard Flow Rate:		12. Nonstack Emission Point Height:	
13. Emission Point UTM Coordinates... Zone: 17 East (km): 450.239 North (km): 3336.359		14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
15. Emission Point Comment: The above information is based on preliminary vendor information and represents the expected approximate emission unit parameters.			

**EMISSIONS UNIT INFORMATION**

Section [2] of [2]

**D. SEGMENT (PROCESS/FUEL) INFORMATION****Segment Description and Rate:** Segment 1 of 1

1. Segment Description (Process/Fuel Type): ULSFO used in the Emergency Diesel Engine Generator		
2. Source Classification Code (SCC): 20100301		3. SCC Units: Thousand Gallons Burned
4. Maximum Hourly Rate: 0.105	5. Maximum Annual Rate: ~25	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: 137 (HHV)
10. Segment Comment: The 1,500 kW emergency diesel engine generator along with the 350 bhp emergency diesel fire pump will not use more than 32,000 gallons per year of ULSFO. Annual emissions from the emergency diesel engine generator are based on 25,000 gallons per year of diesel fuel and 100 percent load, which corresponds to approximately 230 hours per year of operation. The above information is based on preliminary vendor information and represents the expected approximate emission unit parameters.		

**Segment Description and Rate:** Segment \_ of \_

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

**EMISSIONS UNIT INFORMATION**

Section [2] of [2]

**E. EMISSIONS UNIT POLLUTANTS****List of Pollutants Emitted by Emissions Unit**

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
CO			EL
NOX			EL
PM			EL
PM10			NS
SO2			NS
VOC			EL



**EMISSIONS UNIT INFORMATION**

Section [2] of [2] Page

**POLLUTANT DETAIL INFORMATION**

[1] of [10]

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

(Optional for unregulated emissions units.)

**Potential/Estimated Fugitive Emissions**

**Complete Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.**

1. Pollutant Emitted: CO	2. Total Percent Efficiency of Control:
3. Potential Emissions: 3.95 lb/hour      4.54 E-01 tons/year	4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
5. Range of Estimated Fugitive Emissions (as applicable): to   tons/year	
6. Emission Factor:  Reference: Vendor Data	7. Emissions Method Code: 5
8. Calculation of Emissions: Potential emissions are based on vendor data. The maximum hourly CO emission rate is 3.95 lb/hour. The maximum annual potential CO emissions are based on operating 230 hours per year. Annual emissions = 3.95 lb/hr x 230 hours/year x 1 ton/2,000 lb = 0.454 tons/year	
9. Pollutant Potential/Estimated Fugitive Emissions Comment: The potential emissions are estimates based on preliminary vendor data. The potential emissions are given for informational purposes and do not represent limits.	

**EMISSIONS UNIT INFORMATION**

Section [2] of [2]

**POLLUTANT DETAIL INFORMATION**

Page [2] of [10]

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
ALLOWABLE EMISSIONS**

**Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.**

**Allowable Emissions** Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: RULE - NSPS Subpart IIII	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 2.6 g/hp-hr	4. Equivalent Allowable Emissions:
5. Method of Compliance: Manufacturer certification	
6. Allowable Emissions Comment (Description of Operating Method): Based on the NSPS, compliance will be certified by the manufacturer and no emissions testing is required.	

**Allowable Emissions** Allowable Emissions    of   

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

**EMISSIONS UNIT INFORMATION**

Section [2] of [2]

**POLLUTANT DETAIL INFORMATION**

Page [3] of [10]

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

(Optional for unregulated emissions units.)

**Potential/Estimated Fugitive Emissions**

**Complete Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.**

1. Pollutant Emitted: NOX	2. Total Percent Efficiency of Control:
3. Potential Emissions: 28.98 lb/hour                      3.33 tons/year	4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
5. Range of Estimated Fugitive Emissions (as applicable): to   tons/year	
6. Emission Factor:  Reference: Vendor Data	7. Emissions Method Code: 5
8. Calculation of Emissions: Potential emissions are based on vendor data. The maximum hourly NO <sub>x</sub> emission rate is 28.98 lb/hour. The maximum annual potential NO <sub>x</sub> emissions are based on operating 230 hours per year. Annual emissions = 28.98 lb/hr x 230 hours/year x 1 ton/2,000 lb = 3.33 tons/year	
9. Pollutant Potential/Estimated Fugitive Emissions Comment: The potential emissions are estimates based on preliminary vendor data. The potential emissions are given for informational purposes and do not represent limits.	

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
ALLOWABLE EMISSIONS**

**Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.**

**Allowable Emissions** Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: RULE – NSPS Subpart IIII	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 4.8 g/hp-hr (NOX + NMHC)	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance: Manufacturer certification	
6. Allowable Emissions Comment (Description of Operating Method): Based on the NSPS, compliance will be certified by the manufacturer and no emissions testing is required.	

**Allowable Emissions** Allowable Emissions    of   

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

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

(Optional for unregulated emissions units.)

**Potential/Estimated Fugitive Emissions**

**Complete Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.**

1. Pollutant Emitted: PM/PM10	2. Total Percent Efficiency of Control:
3. Potential Emissions: 0.20 lb/hour      2.30 E-02 tons/year	4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
5. Range of Estimated Fugitive Emissions (as applicable): to   tons/year	
6. Emission Factor:  Reference: Vendor Data	7. Emissions Method Code: 5
8. Calculation of Emissions: Potential emissions are based on vendor data. The maximum hourly PM/PM10 emission rate is 0.20 lb/hour. The maximum annual potential PM emissions are based on operating 230 hours per year. Annual emissions = 0.20 lb/hr x 230 hours/year x 1 ton/2,000 lb = 0.023 tons/year	
9. Pollutant Potential/Estimated Fugitive Emissions Comment: The potential emissions are estimates based on preliminary vendor data. The potential emissions are given for informational purposes and do not represent limits.	

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
ALLOWABLE EMISSIONS**

**Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.**

**Allowable Emissions** Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: RULE – NSPS Subpart IIII	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 0.15 g/hp-hr	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance: Manufacturer certification	
6. Allowable Emissions Comment (Description of Operating Method): Based on the NSPS, compliance will be certified by the manufacturer and no emissions testing is required.	

**Allowable Emissions** Allowable Emissions    of   

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

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

(Optional for unregulated emissions units.)

**Potential/Estimated Fugitive Emissions**

**Complete Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.**

1. Pollutant Emitted: SO <sub>2</sub>	2. Total Percent Efficiency of Control:
3. Potential Emissions: 0.022 lb/hour      2.55 E-03 tons/year	4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor:  Reference: Vendor Data	7. Emissions Method Code: 5
8. Calculation of Emissions: Potential emissions are based on vendor data using fuel oil with 0.0015 percent sulfur content. The maximum hourly SO <sub>2</sub> emission rate is 0.022 lb/hour. The maximum annual potential SO <sub>2</sub> emissions are based on operating 230 hours per year. Annual emissions = 0.022 lb/hr x 230 hours/year x 1 ton/2,000 lb = 2.55 E-03 tons/year	
9. Pollutant Potential/Estimated Fugitive Emissions Comment: Potential emissions shown in Fields 3 and 8 are based on using fuel oil with 0.0015 percent sulfur content. The potential emissions are estimates based on preliminary vendor data. The potential emissions are given for informational purposes and do not represent limits.	

**EMISSIONS UNIT INFORMATION**

Section [2] of [2]

**POLLUTANT DETAIL INFORMATION**

Page [8] of [10]

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
ALLOWABLE EMISSIONS**

Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

**Allowable Emissions** Allowable Emissions \_ of

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

**Allowable Emissions** Allowable Emissions \_ of

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



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

(Optional for unregulated emissions units.)

**Potential/Estimated Fugitive Emissions**

**Complete Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.**

1. Pollutant Emitted: VOC		2. Total Percent Efficiency of Control:	
3. Potential Emissions: 0.71 lb/hour      8.17 E-02 tons/year		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year			
6. Emission Factor:  Reference: Vendor Data		7. Emissions Method Code: 5	
8. Calculation of Emissions: Potential emissions are based on vendor data. The maximum hourly VOC emission rate is 0.71 lb/hour. The maximum annual potential VOC emissions are based on operating 230 hours per year. Annual emissions = 0.71 lb/hr x 230 hours/year x 1 ton/2,000 lbs = 8.17 E-02 tons/year			
9. Pollutant Potential/Estimated Fugitive Emissions Comment: The potential emissions are estimates based on preliminary vendor data. The potential emissions are given for informational purposes and do not represent limits.			

**EMISSIONS UNIT INFORMATION**

Section [2] of [2]

**POLLUTANT DETAIL INFORMATION**

Page [10] of [10]

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
ALLOWABLE EMISSIONS**

**Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.**

**Allowable Emissions** Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: RULE- NSPS Subpart IIII	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 4.8 g/hp-hr (NOX + NMHC)	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance: Manufacturer certification	
6. Allowable Emissions Comment (Description of Operating Method): Based on the NSPS, compliance will be certified by the manufacturer and no emissions testing is required.	

**Allowable Emissions** Allowable Emissions    of   

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

**EMISSIONS UNIT INFORMATION**

Section [2] of [2]

**G. VISIBLE EMISSIONS INFORMATION**

**Complete Subsection G if this emissions unit is or would be subject to a unit-specific visible emissions limitation.**

**Visible Emissions Limitation:** Visible Emissions Limitation \_\_\_ of \_\_\_

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: <input type="checkbox"/> Rule <input type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions:                      %      Exceptional Conditions:                      % Maximum Period of Excess Opacity Allowed:                      min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment:	

**Visible Emissions Limitation:** Visible Emissions Limitation \_\_\_ of \_\_\_

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: <input type="checkbox"/> Rule <input type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions:                      %      Exceptional Conditions:                      % Maximum Period of Excess Opacity Allowed:                      min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment:	

**EMISSIONS UNIT INFORMATION**

Section [2] of [2]

**H. CONTINUOUS MONITOR INFORMATION**

**Complete Subsection H if this emissions unit is or would be subject to continuous monitoring.**

**Continuous Monitoring System:** Continuous Monitor \_\_ of

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	<input type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

**Continuous Monitoring System:** Continuous Monitor \_\_ of

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	<input type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

## EMISSIONS UNIT INFORMATION

Section [2] of [2]

### I. EMISSIONS UNIT ADDITIONAL INFORMATION

#### Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date <u>April 2008</u>
2. Fuel Analysis or Specification (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date <u>April 2008</u>
3. Detailed Description of Control Equipment (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date _____
4. Procedures for Startup and Shutdown (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date _____ <input checked="" type="checkbox"/> Not Applicable (construction application)
5. Operation and Maintenance Plan (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date <u>April 2008</u> <input type="checkbox"/> Not Applicable
6. Compliance Demonstration Reports/Records <input type="checkbox"/> Attached, Document ID: _____ Test Date(s)/Pollutant(s) Tested: _____ <input type="checkbox"/> Previously Submitted, Date: _____ Test Date(s)/Pollutant(s) Tested: _____ <input type="checkbox"/> To be Submitted, Date (if known): _____ Test Date(s)/Pollutant(s) Tested: _____  <input checked="" type="checkbox"/> Not Applicable  Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.
7. Other Information Required by Rule or Statute <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable

**Section [2] of [2]**

1. Control Technology Review and Analysis (Rules 62-212.400(6) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e))  
☒ Attached, Document ID: See Section 3 of Application Support Document

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2. Good Engineering Practice Stack Height Analysis (Rule 62-212.400(5)(h)6., F.A.C., and Rule 62-212.500(4)(f), F.A.C.)  
☒ Attached, Document ID: See Section 4 of Application Support Document

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3. Description of Stack Sampling Facilities (Required for proposed new stack sampling facilities only)  
☐ Attached, Document ID: \_\_\_\_\_ ☒ Not Applicable

1. Identification of Applicable Requirements:  
☐ Attached, Document ID: \_\_\_\_\_

2. Compliance Assurance Monitoring:  
☐ Attached, Document ID: \_\_\_\_\_ ☐ Not Applicable

3. Alternative Methods of Operation:  
☐ Attached, Document ID: \_\_\_\_\_ ☐ Not Applicable

4. Alternative Modes of Operation (Emissions Trading):  
☐ Attached, Document ID: \_\_\_\_\_ ☐ Not Applicable

[illegible]




## **RAI 10 – FDEP Combined Cycle Conversion Memorandum**



Memorandum

Florida Department of  
**Environmental Protection**

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To: Jeremy Susac, FDEP Energy Office  
From: Trina Vielhauer, FDEP Bureau of Air Regulation   
Date: February 12, 2008  
Subject: Proposed JEA Southeast Generating Station  
Greenfield Power Plant Project

In the past few weeks, the Bureau of Air Regulation has met twice with JEA to discuss a proposed new greenfield power plant known as the Southeast Generating station to be located south of JEA's existing Kennedy Generating station. From our discussions, the new plant will initially consist of two simple cycle combustion turbines rated at 177 MW each to meet projected demands for the summer of 2010. To meet projected demands for the summer of 2012, JEA proposes to convert these simple cycle units to combined cycle units in order to produce an additional 185 MW of steam-generated power.

JEA expects to submit an application to the Bureau of Air Regulation in April of 2008 for a PSD air permit to construct the simple cycle units. JEA expects to submit a site certification application to your office and a PSD application to convert the combustion turbines to combined cycle operation mid to late 2008 (before construction begins on the simple cycle units). JEA contends that the simple cycle project is viable on its own.

We understand that JEA has also met with staff from the Siting office and discussed these same details. We will let you know when we receive the application. If you have any questions, please let me or Jeff Koerner know.