Golder Associates Inc.

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

July 21, 2003

0337587

Florida Department of Environmental Protection
Bureau of Air Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Fl 32399-2400

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

RE: OSPREY ENERGY CENTER – 527 MW COMBINED CYCLE PROJECT
DEP FILE NO. 1050334-AC (PSD-FL-287)

Dear Al:

This correspondence is being submitted to update the Department on design enhancements made to the above referenced project. A wet surface air cooler will be constructed and operated for equipment cooling. These units were identified on the latest site plan during the Site Certification process but final design information was not available.

Based on the latest design information, the maximum PM emissions from the wet surface air cooler are 0.16 lb/hr and 0.7 tons/year. The maximum PM10 emissions are estimated to be <0.08 lb/hr and <0.35 tons/year. The emission calculations are:

- 11,300 gallons recirculating water/minute x 0.002 gallon drift/100 gallons circulating water (0.002%) x 8.34 lb/gallon x 60 minutes/hour x 1,400 ppm maximum TDS(PM)/10^6 = 0.16 lb/hour
- 0.16 lb/hr x 8,760 hours/year x ton/2,000 lb = 0.7 tons PM /year
- PM10 = ½ of PM

Please note that the worst case total dissolved solids (TDS) was used in the calculation, which is the same as used for the cooling tower.

This unit is an insignificant emission unit and exempt from permitting requirements pursuant to the generic exemption provided in 62-210.300(3)(b) F.A.C. of 5 tons/year for particulate matter. This unit is in the same category as that identified in the PSD permit as miscellaneous (emergency generator and diesel fire pump). The preamble to the exemptions in Rule 62-210.300(3) states that "a facility, emissions unit or pollutant emitting activity shall be exempt from the permitting requirements of this chapter, Chapter 62-212 and Chapter 62-4, if the applicable criteria" listed in the exemptions are met. While the emissions would be included in a facility's potential to emit calculations for PSD and Title V applicability, the insignificant magnitude to these emissions would not change the applicability under either requirement.

The emissions associated with these equipment coolers are a result of the same process as the cooling tower but will be more than an order of magnitude less than the cooling tower. In addition, the only

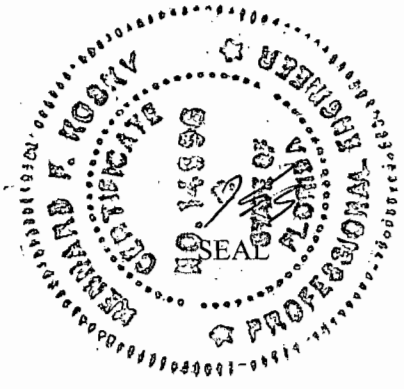
requirement for the cooling tower is the installation of drift eliminators capable of limiting drift to 0.002 gallons per 100 gallons of recirculation water flow (i.e., 0.002%). Attached is the design information for the wet surface air cooler and a physical description. As noted on the design information, the drift rate is 0.002% of recirculation water flow. The design information and calculations for the wet surface air cooler will be included in the Title V for the facility when it becomes operational.

Please call if you have any questions.

Sincerely,

GOLDER ASSOCIATES INC.

Kennard F. Kosky, P.E.
Principal
Professional Engineer Certification 14996



KFK/jej

Enclosure-Site Plan

cc: Mr. Benjamin Borsch, P.E., Calpine Corporation

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WET SURFACE AIR COOLER DATA SHEET

PROJECT:	Osprey Energy Center	DS NO:	OSEC-100-DS-174001-0001		
CUSTOMER:	Calpine	DESC:	WET SURFACE AIR COOLER		
PLANT LOC:	0	REV:	2	DATE:	28-Mar-02
COST CODE:	174001	EQ TAGs:	0100-CCW-CT-001		

DESIGN REQUIREMENTS (TO BE COMPLETED BY PURCHASER)

1	Type		Max Plan Area (L x W)		70x40	ft
2	Construction Type	Basin	Concrete	Plenum	Galvanized Steel	
3	Fan Sizing Criteria:		Max Motor Nameplate		125	hp
			Max. Air Inlet Face Velocity		710	fpm
			Min. Fan Stack Exit Velocity		1400	fpm
4	**DESIGN THERMAL PERFORMANCE:**					
	Process Water Flow				11,300	gpm
	Design Heat Load				61,400,000	MMBTU/hr
	Inlet Water Temperature				106	Deg F
	Outlet Water Temperature				95	Deg F
	Process Water Operating Pressure				62	psig
	AMBIENT CONDITIONS:					
	Design Inlet Wet Bulb Temperature				80	Deg F
	Design Inlet Dry Bulb Temperature				95	Deg F
	Design Inlet Humidity				52	%
5	**DRIFT LIMIT:**		% of recirculation flow		0.002	%
6	**MAXIMUM NOISE EMISSIONS**					
	Sound Power Level (dBA)		Distance from Surface		Height Above Grade	
	85	ft	5	ft	3	ft

7 **MAKEUP WATER ANALYSIS:**

PARAMETER	UNITS	WATER DESIGN		WATER MAXIMUM	
Calcium	ppm CaCO3	87.97			
Magnesium	ppm CaCO3	21.64			
Sodium	ppm CaCO3	101.42			
Potassium	ppm CaCO3	7.92			
Total Alkalinity	ppm CaCO3	361.96			
Chloride	ppm CaCO3	96.13			
Sulfate	ppm CaCO3	62.08			
Nitrate	ppm CaCO3	2.55			
Phosphate	ppm CaCO3	3.34			
Silica	ppm SiO2	51.66			
COD					
Total Hardness	ppm CaCO3	N/A			
Calcium Hardness	ppm CaCO3	309.57			
Total Iron	ppm Fe	1.43			
pH		N/A			
Conductivity	uS/cm	N/A			
Dissolved Solids	ppm	871.96			
Suspended Solids	ppm	3.35			
Turbidity	NTU	N/A			

8	Cycles of Concentrations		Design	3	Maximum	5
9	Tube Material				Carbon Steel	
10	Final Grade Elevation				145	ft
11	**WIND INFORMATION:**					
	Prevailing Wind Direction:		East	Wind Rose Diagram No:		mna

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	Maximum Coincident Wind Speed				115	mph
12	ELECTRICAL REQUIREMENTS:	hp		Volts	Hertz	
	Fan Motors - Below	200		480	60	
	Fan Motors - Above	200		4000	60	
	Speed	One Speed		Type		
	Lighting and Space Heaters	480		Volts	60	Hz
	Control Power			Volts AC		Hz
13	VALVE ACTUATION TYPE:					
	Cell Isolation			None		
14	Cell Access Door System and Walkway Required?				Yes	
15	Fan Deck Equipment Removal System Required?				No	
16	Process Water System Design					
	Pressure	100	psi	Temperature	120	Deg F
17	Lightning Protection?					
18	PERFORMANCE CURVE PROPOSAL REQUIREMENTS:					
	Guarantee - at above Item 4 and 5.					
	61,400,000 Btu/hr Heat Rejection at 11,300 gpm cooling water flowrate and 0.002% Drift Limit					
	Expected - for three ambients					
	Remarks: **Four (4) 33% fans shall be provided.**					
	Cooling water flowrate, Heat load and Design Ambient Condition have been changed from rev.1					

To Be Completed by Vendor	
Bidder/Manufacturer	
Proposal Number	
Construction Type	
Model number	
Tower Type	

PERFORMANCE		
Total Guaranteed Power Consumption		kw
Cold Water Temp		Deg F
FAN DRAFT:		
Resistance of Air Inlet		inches H2O
Resistance of Drift		inches H2O
Resistance of Stack		inches H2O
Total Resistance		inches H2O
Dry Air Through Tower		lb/min
Air Inlet Face Velocity		fpm
Fan Stack Exit Velocity		fpm
Noise (Fill in attached Noise Data Sheets)		

PROCESS WATER TUBE BUNDLES			
Hot Pipe Connection Type/Diameter			in
Cold Pipe Connection Type/Diameter			in
Height of Connections above Basin Curb			ft
Design Pressure of Tube Bundle			psig
Pressure Loss Through Tubes			psi

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Acceptance Interface Connection Nozzle Loads (X/Y/Z)				
Number of Tubes				
Number of Coil Sections				
Effective Surface Area				ft2
Type of Construction				
Spacing Between Tubes				
Tube Diameter				in
Tube Wall Thickness				in
SPRAY WATER DISTRIBUTION SYSTEM				
Total Volume				gal
Max. Capacity of Distribution System (Without Overflow)				gpm
Water Loading (Fill Cross Section)				gpm/ft2
Dift Loss as Percent of Recirculating Water Flow				%
Evaporation Loss				gpm
Qty of spray nozzles				
Nozzle Opening Size				in
Sray Header Piping Nominal Diameter				in
Design Pressure of Distribution System				psig
Cell Isolation Valve Manufacturer				
Cell isolation Valve Model Number				
Distribution Manifold Valve Manufacturer				
Distribution Manifold Valve Model Number				
Recirculation Spray Pump				
Number of pumps/capacity				%
Flow per pump				gpm
Total discharge head				ft H2O
Estimated Recirculation Spray Pump HP				hp
STRUCTURE				
Number of Cells				
Number of Fans per Cell				
Inside Basin Dimensions	L x W x D			
Minimum Basin Freeboard				ft
Basin Normal Water Level Elevation				ft
Live Basin Water Storage Volume				gal
Nominal Cell Dimensions	L x W			
Overall Tower Dimensions	L x W			
Height Basin Curb to Fan Deck				ft
Fan Stack Height				ft
Overall Tower Height				ft
Stack Diameter at Inlet, Throat and Outlet				ft
Total Weight of Wet Surface Air Cooler Dry and Operating				lbs
Fan Deck Live and Snow Loading				psi
BASIN CONSTRUCTION:				
Estimated Quantity of Concrete				cubic yards
Estimated Quantity of Reinforcement				lbs
Reinforcement Size				in
Reinforcement Spacing				in

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Wall Thickness				ft
Floor Thickness				ft
Drawings By				
Fabrication By				
PLENUM DESIGN:				
Construction Type				
Estimated Quantity of Concrete (If applicable)				cubic yards
Wall Thickness				ft
Floor Thickness				ft
Drawings By				
Fabrication By				
MATERIALS OF CONSTRUCTION				
Framework				
Tube Bundles				
Tube Sheets				
Cover Plate				
Nozzles				
Spray Distribution Piping				
Fan Deck				
Stairway				
Access Platforms and Walkways				
Handrail				
Grating and Grating Treads				
Fan Stacks				
Fan Blades				
Fan Hub				
Fan Shafts				
Fan Couplings				
Hardware, Fasteners, and Anchor Bolts				
FANS				
Number of Fans Total/Capacity				%
Manufacturer and Model Number				
Type				
Number of Blades per Fan				
Diameter				in
Maximum Fan Blade Tip Clearance				in
	LOW SPEED	**HIGH SPEED**		
Fan Speed				rpm
Blade Tip Speed				fps
Brake Horsepower (Driver output)				hp
Total Static Pressure (at design density)				inches H2O
Velocity Pressure (at design density)				inches H2O
Total Pressure (including vel. recovery at design density)				inches H2O
Air Delivery per Fan				CFM
Fan Static Efficiency				%
Fan Total Efficiency				%
SPEED REDUCER				

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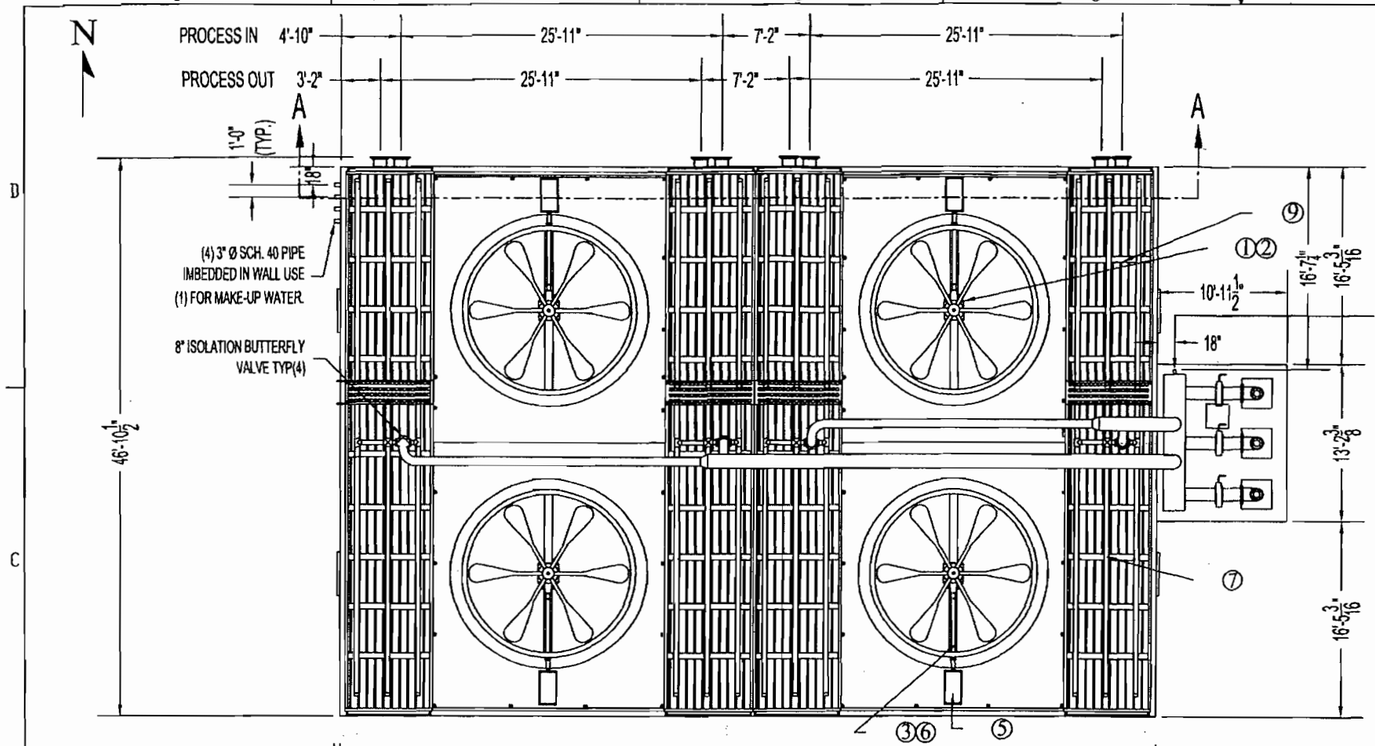
Manufacturer and Model Number						
Type						
AGMA Horsepower Rating						hp
Service Factor at Rated HP						
Reduction Ratio						
Anti-Reverse Mechanism Provided?						
RADIAL AND TRUST BEARINGS						
Manufacturer						
Type						
L10 Life						
DRIVE SHAFT						
Manufacturer and Model Number						
Type						
Length						ft
Diameter						in
Rated Horsepower						hp
Service Factor at Rated HP						
Coupling Manufacture and Type						
FAN DRIVER						
Manufacturer and Model Number						
Enclosure Type and Frame Size						
Operating Speeds						rpm
Electric Power		Volts		Phase		Hz
Nameplate and Horsepower Rating						HP
Service Factor and Efficiency						%
Full Load Amps						A
Locked Motor Amps						A
INSTRUMENTATION						
Vibration Switch Manufacturer						
Vibration Switch Model						
Oil Pressure Switch Manufacturer						
Oil Pressure Switch Model						
Oil Differential Pressure Switch Manufacturer						
Oil Differential Pressure Switch Model						
ELECTRICAL						
Lighting Fixtures Manfacturer						
Lighting Fixtures Model				Quantity		
Emergency Lighting Fixtures Manufacturer						
Emergency Lighting Fixtures Model				Quantity		
Lightning Protection?						
SITE CONSTRUCTION INFORMATION						
Required Laydown Area		L x W				



PARSONS ENERGY & CHEMICALS GROUP, INC.
OSPREY ENERGY CENTER

X REVIEWED AND ACCEPTED
— REVIEWED AND ACCEPTED AS NOTED (RESUBMIT FOR RECORD)
— NOT ACCEPTED (RESUBMIT FOR REVIEW)
— FOR INFORMATION ONLY (REVIEW WAIVED)
—

THE REVIEW OF THIS SUBMITTAL IS ONLY FOR GENERAL CONFORMANCE WITH THE DESIGN CONCEPTS OF THE PROJECT AND GENERAL COMPLIANCE WITH THE INFORMATION IN THE CONTRACT. THE SUBMITTAL VENDOR IS FULLY RESPONSIBLE FOR; FULL COMPLIANCE WITH THE PROJECT REQUIREMENTS; FOR DIMENSIONS TO BE CONFORMED AND/OR RELATED AT/TO THE JOBSITE; FOR INFORMATION THAT PERTAINS SOLELY TO THE FABRICATION PROCESS; FOR DESIGNS ORIGINATED BY HIM/HER; FOR TECHNIQUES OF CONSTRUCTION AND; FOR COORDINATION OF THE WORK OF ALL TRADES. SUBMITTAL REVIEW DOES NOT CONSTITUTE A CHANGE ORDER AND DOES NOT ALTER ANY CONTRACT TERMS AND CONDITIONS.

DATE 10/17/02 BY MBorden

NO —

Item	Unit Qty	Description
1	4	PROP. FAN, 14 FT. DIA., FRP BLADE, GALV. HUB. MANUAL ADJ. PITCH, 304 SS HARDWARE
2	4	RIGHT ANGLE GEAR REDUCER, AGMA 2.0 RATING, LOW OIL LEVEL CUT-OFF SWITCH, SPDT 120 VAC
3	4	COMPOSITE DRIVE SHAFT, STAINLESS STEEL HARDWARE, FLEXIBLE, NON-LUBE, DYNAMICALLY BALANCED.
4	4	FAN STACK, 14 FT. DIA. X 6 FT. HIGH, RIGID FRP CONSTRUCTION, STAINLESS STEEL HARDWARE
5	4	FAN MOTOR, 60 HP.
6	4	MOTOR AND GEAR REDUCER MOUNTING, TORQUE TUBE, HDGAF
7	4	RECIRCULATING SPRAY ARRANGEMENT, SCH 40 PVC PIPE, UV STABILIZED AND FITTED WITH ABS NOZZLES. ONE (1) LUG STYLE BUTTERFLY VALVE AT INLET.
8	1	CASING ASSEMBLY, 12 GA.BOLTED PANELS, HDGAF
9	4	TUBE BUNDLE, STRAIGHT THROUGH, CLEANABLE. CONSTRUCTED WITH REMOVABLE COVERS, 1.25" DIA X .063 AVG. WALL, GALV. OUTSIDE, TUBE. TUBESHEETS OF 1" THK. A516 GR. 70 CARBON STEEL.
10	1	ACCESS PACKAGE, FAN DECK HANDRAILS, ONE (1) COIL WALKWAY, ONE (1) FAN DECK ACCESS LADDER.
11	4	BASIN ACCESS DOOR, STAINESS STEEL, 30"X42"
12	3	30 HP SPRAY PUMPS, SEE NOTE 5

OPERATIONS DATA
FANS: 236,100 CFM EACH
57.8 BHP EACH
SPRAYS:
7128 GPM
3-5 PSI @ NOZZLE
ESTIMATED MAKE-UP @163.7 GPM

DESIGN DATA
SERVICE-WATER COOLER
FLOW-11,300 GPM
W.B. TEMP - 80° F
HEAT DUTY-61,400,000 BTU/HR
PROCESS IN TEMP.-106° F
PROCESS OUT TEMP-95° F

Notes:

1. ONE (1) UNIT SHOWN, ONE(1) UNIT REQUIRED.
2. TUBE BUNDLE & SPRAY CONNECTION LOCATIONS ARE APPROX. AND NOT TO BE USED FOR PIPING PREFABRICATION
3. UNIT STRUCTURE, FOUNDATION AND PUMP PIT TO BE CAST-IN-PLACE CONCRETE, CLASS 4500 #57W / HRWR & METAKAOLIN PER RNC EWELL, MIX #90325
4. WIRING, CONTROLS AND CONDUIT TO UNIT, MOTORS, VIBRATION AND LOW OIL LEVEL SWITCHES BY OTHERS
5. NBC TO PROVIDE THREE (3) VERTICAL, MIXED FLOW, SINGLE STAGE PUMPS WITH 460V/60HZ/3PH TEFC MOTORS. PUMPS TO BE LOCATED IN COMMON PIT. TWO (2) PUMPS FOR NORMAL OPERATION AND ONE (1) PUMP FOR STANDBY. ONE (1) LUG STYLE BUTTERFLY ISOLATION VALVE PER PUMP DISCHARGE.

00893 - NB-3095 - - - E

OSEC-1-DV-174001-NB-3095-R1

REVISION	LOCATION	CHECKED BY	DATE	REVISION OR ADDITION
E			9/26/02	BLOWDOWN CONNECTION DIMENSIONS, 3" IMBEDDMENT PIPES
D			8/28/02	MOVED ACCESS DOORS TO EAST & WEST SIDES, 3" SCH. 40 IMBEDDMENT PIPES MOVED TO NW CORNER
C			8/21/02	REVISED SPRAY PUMPS, PROCESS IN AND OUT LISTING ON ELEVATION
B			8/8/02	CUST. REQUESTED BOTH IN AND OUT PROCESSES AT NORTHERN END/TUBE BUNDLE CHANGED FROM 3 TO 2 PASS

APPROVAL SIGNATURES	DATE	CUST. P.O. NO. C0100.400.9115	Niagara Blower Company Engineered Heat Transfer Systems BUFFALO, NEW YORK
DRAWN BY: JVP	8/7/02	SERIAL NO. 02-15046-48	
CHECKED BY: JRK		SHOP ORDER NO. 15046-48	UNAUTHORIZED USE, MANUFACTURE, OR REPRODUCTION EITHER IN WHOLE OR PART IS PROHIBITED. DRAWING DESIGN AND OTHER DISCLOSURES PROPERTY OF NIAGARA BLOWER COMPANY.
ENGINEER:		DIMENSIONS IN MILLIMETERS / INCHES ☒	TITLE: General Assembly For RWC 48645-4F16 WSAC
		T.E.RANCES UNLESS OTHERWISE SPECIFIED DECIMALS: XX +/- .015 XXX +/- .010	CUSTOMER: KVAERNER INDUSTRIAL / OSPREY AUBURNDALE, FLA
RELEASED BY:		ANGLES: +/- 1/2 DEG. FRACTIONS: +/- 1/4"	DWG B SIZE; DRAWING NO. NB-3095; SHEET 1 OF 1; FILE:
APPLICABLE SPECIFICATIONS		SCALE: 1:192	SHEET REV-E; SEE SHEET 1 REV RECORD FOR LATEST DRAWING REV.

Y:Projects\2003\0337587\4\4.1\072103\Wet Surface Air Cooler...pdf

CALPINE

ISLAND CENTER
2701 N. ROCKY POINT DRIVE
SUITE 1200
TAMPA, FLORIDA 33607
813.637.7300
813.637.7399 (FAX)

RECEIVED
JUN 10 2004
BUREAU OF AIR REGULATION

June 9, 2004

Mr. Michael Halpin
Bureau of Air Quality
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Re: Calpine Construction Finance Company, LP
Osprey Energy Center
Request for Minor Permit Modification
PSD permit PSD-FL-287

Dear Mr. Halpin:

Further to our recent conversation, Calpine Construction Finance Company, LP (Calpine), is requesting a minor modification of the PSD construction permit for the Osprey Energy Center located in Polk County. In our conversation, I said that the permit referred specifically to the size of the generator. Review of the permit language indicates that this is not the case. The permit refers specifically, to the generator being gas fueled. Calpine proposes to instead construct and operate a diesel oil fueled generator. The new generator will be 1250 kW in generating capacity, compared to 600 kW specified in the application for the initial unit.

The PSD permit identifies an "emergency (gas fired) generator" in the project description on the first page of the permit and in the technical evaluation. No specific condition of the permit refers to this unit nor is there any other reference in the body of the permit.. The unit is identified in the Technical Evaluation with the same language and identified as a categorically exempt unit pursuant to F.A.C. 62-210.300(a). The permit application identifies this unit as having a generating capacity of 600 kW. Calpine proposes to replace this unit with a 1250 kW emergency generator fueled by low sulfur diesel fuel oil. The revised unit would continue to be limited to operation less than 500 hours per year and will continue to meet the requirements for categorical exemption under 62-210.300(3)(a). When the facility reaches Title V status, Calpine expects that this unit will qualify as an insignificant source for Title V purposes as described in 62-213.430(6).

The proposed unit is manufactured by Spectrum Detroit Diesel (model DDC12V-4000) with a heat input capacity of 8 million Btu/hour. Emissions information for the proposed unit is given in Table 1. Emissions information supplied previously to the department for the initial unit (to be deleted) is supplied for comparison in Table 2. Diesel fuel for the

unit will be stored in a 2,250 gallon double walled tank integral to the unit's base assembly.

Calpine requests that the permit be modified so that the reference to the emergency generator simply say "emergency generator" without reference to the fuel type. If the department feels that this specific needs to be included, it would also be acceptable for the permit to state that the generator is fired with low sulfur diesel oil.

If you have any questions or need additional information, please contact me via telephone at (813) 637-7305 or via email at bborsch@calpine.com.

Sincerely,

Calpine Construction Finance Company, LP

Benjamin M. H. Borsch, P.E.
Manager, Safety, Health & Environment

Cc: Mr. James Pennington, FDEP
Mr. David Dee, Landers & Parsons
Mr. Robert Callery, Osprey

Table 1
EMISSION UNIT: EMERGENCY GENERATOR

Basis and assumptions:

1) Emissions based on a maximum annual fuel usage of 29,200 gallons.
2) Diesel oil is assumed to have a heat content of 137,500 Btu/gal and a specific weight of 55.6 lb/cu ft.
3) Annual emissions based on 500 hours of operation per year.
4) NO_x, CO, and PM emission factors were from the manufacturer are given as:
   - NO_x 2.3 lb/MM Btu
   - CO 0.52 lb/MM Btu
   - PM 0.0086 lb/MM Btu
5) Potential VOC emissions are based on AP-42 emission factor of 0.35 lb/MMBtu from Table3.3- 1 (September1998).
6) Potential SO2 emissions were calculated assuming the sulfur content of diesel fuel is 0.05 percent by weight and that 100% of sulfur is converted to SO2.
7) Formaldehyde emissions are based on AP-42 emission factor from Table 3.3-2 (September 1998) of 0.00118 lb/MMBtu.

Emission calculations:

1) Nitrogen dioxide

Potential emissions = (emission factor, lb/MM Btu) x (heat input, Btu/gal) x (gallons of fuel used) / (500 hr/yr)

(2.3 lb/MM Btu) x (137,500 Btu/gal) x (29,200 gal) / (500 hr/yr)
= 18.6 lb/hr
= 4.62 ton/yr

2) Carbon monoxide

Potential emissions = (emission factor, lb/MM Btu) x (heat input, Btu/gal) x (gallons of fuel used) / (500 hr/yr)

(0.52Ib/MM Btu) x (137,500 Btu/gal) x (29,200 gal) / (500 hr/yr)
= 4.171b/hr
= 1.04 ton/yr

3) Volatile organic compounds

Potential emissions = (emission factor, lb/MM Btu) x (heat input, Btu/gal) x (gallons of fuel used) / (500 hr/yr)

(0.35 Lb/MMBtu) x (137 500 Btulgal) x (29 200 gal) 1 (500 hr/yr)
= 2.8 lb/hr
= 0.70 ton/yr

4) Particulate matter

Potential emissions = (emission factor, lb/MM Btu) x (heat input, Btu/gal) x (gallons of fuel used) / (500 hr/yr)

(0.086 lb/MM Btu) x (137,500 Btu/gal) x (29,200 gal) / (500 hr/yr)
= 0.69 1b/hr
= 0.17 ton/yr

5) Sulfur dioxide

Potential emissions (S content of fuel) x (specific weight of fuel, lb/scf) / (7.48 gal/scf) x (fuel usage gal) / (500 hr/yr) x (MW of S) x (mole conversion from S to S02) x (MW of SO2)

(0.05/100) x (55.6 lb/cu ft) / (7.48 gal/scf) x (29,200 gal) / (500 hr/yr) / (32.064 lb S/lb-mole) x (1 lb-mole SO/lb-mole S) x (64.07 lb SO/lb-mole)
= 0.43 lb/hr
= 0.108 ton/yr

6) Formaldehyde

Potential emissions = (emission factor, lb/MM Btu) x (heat input, Btu/gal) x (gallons of fuel used) / (500 hr/yr)

(0.00118 lb/MMBtu) x (137 500 Btu/gal) x (29,200 gal) (500 hr/yr)
= 0.0095 lb/hr
= 0.0024 ton/yr

Proposed Generator
Emissions Summary

Pollutant	Emergency Generator Maximum Emissions (TPY)
SO_2	0.108
NO_x	4.62
CO	1.04
VOC	0.70
PM/PM_{10}	0.17
Formaldehyde	0.0024

Table 2
Emissions For Initially Proposed Emergency Generator
(650 kV, Natural Gas Fired)
From PSD Application, March 2000

Pollutant	Emergency Generator Maximum Emissions (TPY)
SO_2	0.006
NO_x	3.8
CO	3.8
VOC	0.095
PM/PM_{10}	0.033

CALPINE

ISLAND CENTER
2701 N. ROCKY POINT DRIVE
SUITE 1200
TAMPA, FLORIDA 33607
813.637.7300
813.637.7399 (FAX)

April 1, 2005

Mr. Michael Halpin
Florida Department of Environmental Protection
Division of Air Management
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: Osprey Energy Center
PSD Permit Number FL-287
Request for Permit Modification to Allow Low Load Operation

Dear Mr. Halpin:

As we have discussed previously, Calpine Construction Finance Company, L.P. (Calpine) is requesting permission to operate the Osprey Energy Center (Osprey) at loads below those stated in our initial air permit application. The department has previously issued a permit to allow Low Load Operation for a limited period of time to allow for testing of the emissions during low load operation and demonstration of the unit capabilities.

While the permit does not contain an explicit limit on the range of operation, the application specified a range of operation between 60 and 100 percent and specified emissions at different loads based on the guarantees provided by the turbine manufacturer. In addition, Condition 21 of the PSD Permit contains a reference to a specific condition on emissions of carbon monoxide (CO) between 60 and 70% of the full operating load.

In response to our earlier discussions and in accordance with the permit modification (DEP File Number 1050334-005-AC) granted January 7, 2005, Calpine has conducted testing of the Osprey units at loads between 35 and 40% of the nominal base load for each CT. A copy of the test report showing results of these tests is attached. The results indicate that Osprey is capable of operating the units in compliance with the current permit conditions at these low loads.

In addition, attached are two summary graphs showing performance of the units during the test periods. Based on review of this data and our earlier conversations, Calpine has made some adjustments to our request for changes in Permit Conditions 21 and 25 of the PSD permit and are requesting that operation below 50% (i.e. between 30 and 50%) be allowed at the 17 ppmvd limit specified in the permit for non-base load conditions. We believe these changes reflect both the intent of the PSD permit and a realistic appraisal of what appears possible for operation of the units. Referring to Appendix BD of the PSD permit indicates that the department initially used an averaging technique to determine a

limit for all loads other than the base load. Calpine believes that the data from these tests show that the units will operate at rates below those contemplated in the initial permitting (as supported by the vendor guarantees) and that continued compliance with the conditions as contemplated in the permit for non-base load conditions is appropriate. Calpine also hopes that the department will recognize that operation at low load under the proposed conditions will in fact represent a decrease in actual emissions relative to other operating scenarios required for compliance with the current permit conditions since the overall mass of emissions at these low loads is less than that allowed at the lowest load condition under the current permit.

Please note that Calpine is not requesting any modification of Condition 20.

Submission of the attached test reports for the low load testing is also intended to meet the requirements of condition 47 of the revised permit requiring submission of test reports following the completion of testing.

Condition 21:

Condition 21 of the PSD permit currently states:

> Emissions of CO in the stack exhaust gas (at ISO conditions) with the combustion turbine operating on gas shall exceed neither 10 ppmvd @ 15% O_2 on a 24 hour average to be demonstrated by CEMS for those days when no valid hour includes the use of duct burner firing, power augmentation or 60 – 70% operation (otherwise the limit is 17 ppmvd @15% O_2 on a 24-hr block average to be demonstrated by CEMS); and neither 10 ppmvd @15% O_2 nor 45 lb/hr per unit at 100% output with the duct burner off and no power augmentation to be demonstrated by annual stack test using EPA Method 10 or through annual RATA testing.

Calpine requests a minor change to Condition 21 so that in the future it will read *(changed language shown in italics)*:

> Emissions of CO in the stack exhaust gas (at ISO conditions) with the combustion turbine operating on gas shall exceed neither 10 ppmvd @ 15% O_2 on a 24 hour average to be demonstrated by CEMS for those days when no valid hour includes the use of duct burner firing, power augmentation or *operation below 50%, excluding periods of start up and shut down*, (otherwise the limit is 17 ppmvd @15% O_2 on a 24-hr block average to be demonstrated by CEMS); and neither 10 ppmvd @15% O_2 nor 45 lb/hr per unit at 100% output with the duct burner off and no power augmentation to be demonstrated by annual stack test using EPA Method 10 or through annual RATA testing.

Condition 25:

Condition 25 of the PSD permit currently states:

> Excess emissions resulting from startup, shutdown, or malfuncion shall be permitted provided that best operational practices are adhered to and the duration of the excess emissions shall be minimized. Excess emissions occurrences shall in no case exceed two hours in any 24-hour period except during both "cold start-up" to and shutdowns from combined cycle plant operation. During cold start-up to combined cycle operation, up to four hours of excess emissions are allowed. During shutdowns from combined cycle operation, up to three hours of excess emissions are allowed. Cold start-up is defined as a start up to combined cycle operation following a complete shutdown lasting at least 48 hours. Operation below 60% output shall otherwise be limited to 2 hours in any 24-hour period.

Calpine requests a minor change to Condition 21 so that in the future it will read *(changed language shown in italics)*:

> Excess emissions resulting from startup, shutdown, or malfuncion shall be permitted provided that best operational practices are adhered to and the duration of the excess emissions shall be minimized. Excess emissions occurrences shall in no case exceed two hours in any 24-hour period except during both "cold start-up" to and shutdowns from combined cycle plant operation. During cold start-up to combined cycle operation, up to four hours of excess emissions are allowed. During shutdowns from combined cycle operation, up to three hours of excess emissions are allowed. Cold start-up is defined as a start up to combined cycle operation following a complete shutdown lasting at least 48 hours. Operation below *30%* output shall otherwise be limited to 2 hours in any 24-hour period.

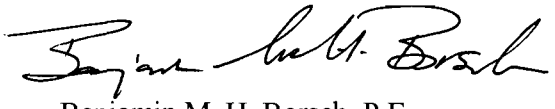
Based on the results of the testing attached, Calpine believes that this change will not result in any increase in emissions.

We look forward to discussing this matter further with you as necessary to expedite this change in the permit. As the Title V permit for these units is also currently under review (Draft Permit Project Number 1050221-009-AV), a copy of this letter is being provided to Mr. Bobby Bull at the department. We will be submitting a separate letter requesting some technical changes to the PSD permit in order to better align the PSD with the forthcoming Title V permit. We are hoping to proceed now with this change since it will also require a minor modification of the Conditions of Certification (Condition 21 appears verbatim in the Conditions) and will therefore take some additional administrative time to come into effect.

If you have questions or need additional information regarding this request, please contact me by telephone at (813) 637-7305 or via email at bborsch@calpine.com.

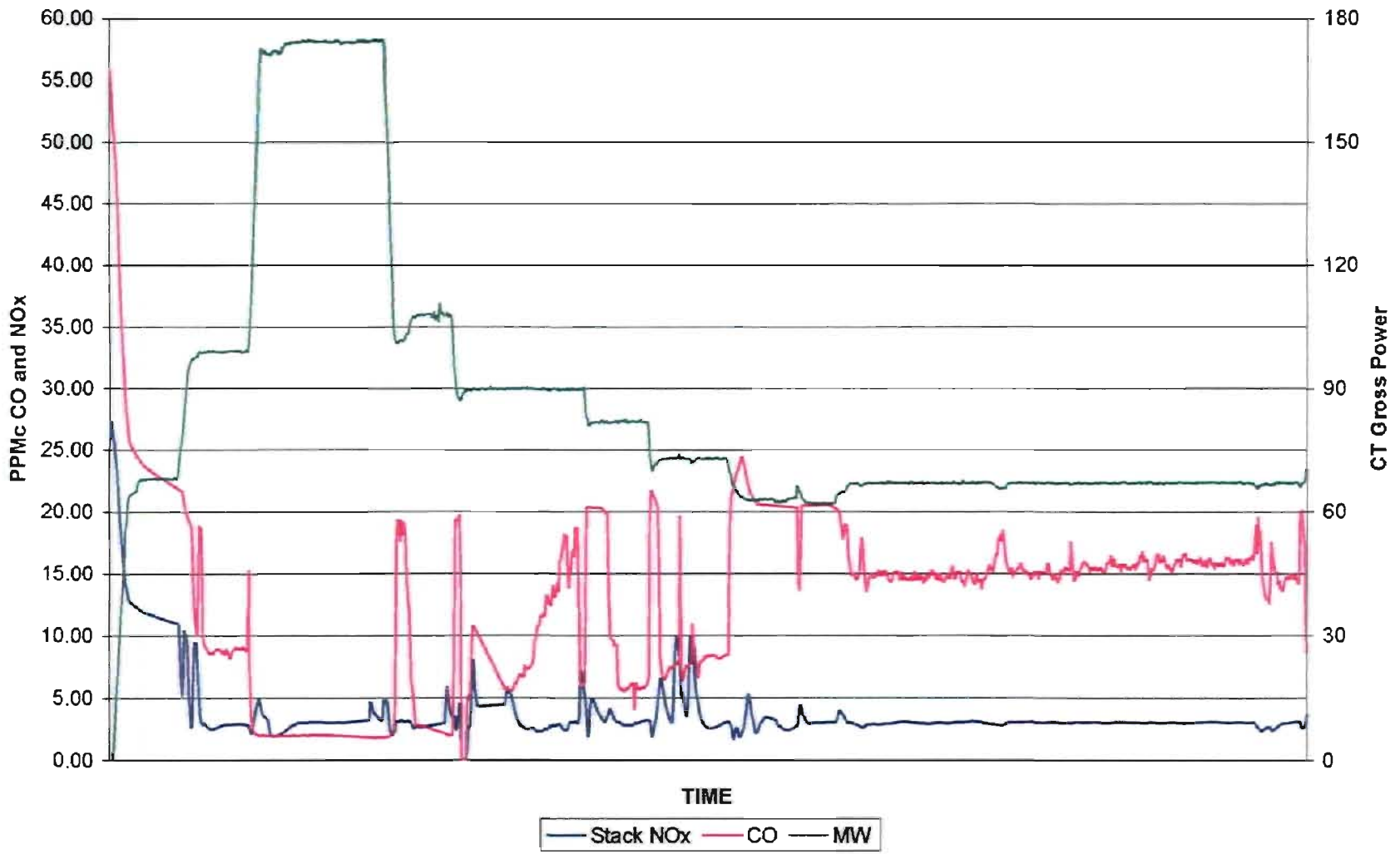
Sincerely,

Calpine Construction Finance Company, L.P.



Benjamin M. H. Borsch, P.E.
Manager, Safety, Health & Environment

CC: Mr. Bobby Bull, FDEP w/o attachment
Mr. Robert Callery, Osprey Energy Center w/o attachment
Mr. William Sena, Osprey Energy Center w/o attachment


Unit 1 CEMS & Gross Power
60.00
55.00
50.00
45.00
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
PPMc CO and NOx
180
150
120
90
60
30
0
CT Gross Power
TIME
Stack NOx
CO
MW

Unit 2 CEMS & Gross Power