

Florida Department of Environmental Protection

Memorandum

TO: Joseph Kahn
THRU: Trina Vielhauer *TV*
FROM: A.A. Linero *aal*
Teresa Heron *TH*
DATE: January 16, 2007
SUBJECT: DEP File Nos. 0850001-016-AC (Related File No. 0850001-017-AV)
FP&L Martin Units 3, 4 and 8
AC Permit Modification

The Air Construction Permit, PSD-FL-327, authorized construction of Combined Cycle Unit 8 at the FPL Martin Power Plant.

Unit 8 has been constructed and tested. The Department distributed a DRAFT Title V Operation Permit Revision to incorporate Unit 8 along with a DRAFT letter of Modification of Construction Permit to modify enforceable permit conditions for Unit 8 and Units 3 & 4 on December 1, 2006.

The main requested changes to the permits' enforceable conditions are:

With respect to Unit 8, FP&L requests:

- Eight hours instead of six hours of excess emissions during the cold startup of the Unit 8 steam turbine-electrical generator (STG);
- Recognition of some diesel engines (for which individual permits were not required) in the Title V Permit;
- Changes to fuel oil storage tank conditions to reflect non-applicability of 40CFR60, Subpart Kb;
- Recognition of excess emission during fuel switch from natural gas to oil;
- Description of a 22-cell (instead of 18-cell) cooling tower; and
- Removal of gas heater references because they installed electric heaters instead.

With respect to Units 3 and 4, FP&L requests:

- Operation of Combined Cycle Units 3 and 4 in the range of 90 to 100 percent of the permitted heat rate (in accordance with the rules) during the annual compliance tests rather than the 95-100% requirement under a DARM Guidance (since rescinded);
- Recognition of power augmentation (PA) for Units 3 and 4; and
- Update of applicable test methods.

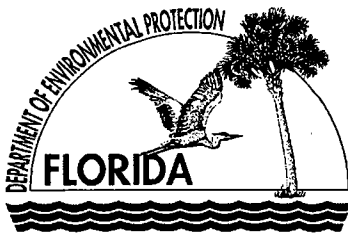
We addressed FP&L's requests regarding Units 3 and 4 in the PSD Permit Modification for Unit 8.

FP&L published this combined permitting action on December 13, 2006. No comments were received during the 30-day public period. Currently the Title V permit revision is being sent to EPA as PROPOSED.

We recommend your approval and signature of this air construction permit modification.

AAL/th

Attachments



Florida Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary-Designee

January 16, 2007

Electronically Sent – Received Receipt Requested

Mr. Craig Arcari, Plant General Manager
Martin Power Plant
Florida Power & Light Company
700 Universe Boulevard
Juno Beach, Florida 33408

Re: DEP File No. 0850001-016-AC
PSD-FL-146C and PSD-FL-327B
Combined Cycle Units 3, 4 and 8

Dear Mr. Arcari:

The Florida Department of Environmental Protection (“the Department”) reviewed your application to make some minor modifications to the PSD Permits related to Combined Cycle Units 3, 4 and 8 in conjunction with issuance of a Title V Operation Permit Renewal that incorporates the recently constructed Unit 8. The changes primarily address startup, testing, and as-built equipment descriptions.

The PSD Permit for Unit 8 has not yet expired. Therefore the changes requested will be addressed as an Air Construction Permit Modification and will also address the requests related to Units 3 and 4 to make them enforceable so they can be included in the requested Title V Operation Permit Renewal.

The Department addressed each request in its Technical Evaluation dated December 1, 2006. Following are the new conditions and changes to previous conditions applicable to Units 3, 4 and 8.

NEW CONDITIONS APPLICABLE TO COMBINED CYCLE UNITS 3 AND 4

The following condition supersedes Specific Condition No. 1 of PSD-FL-146 as previously modified on September 6, 1996.

1. Permitted Capacity. The maximum heat input to each Combustion Turbine (CT) shall neither exceed 1966 mmBtu/hr while firing natural gas, nor 1846 mmBtu/hr while firing fuel oil @ 40 degrees F. These heat input limitations are subject to change. Any changes shall be provided at least 90 days before commercial operation for each fuel available to the site which a unit is capable of firing, at which time this condition may be modified to reflect those parameters. Each combined cycle’s fuel consumption shall be continuously determined and recorded.

Operation During Testing. Testing of emissions shall be conducted with the emissions unit operating at permitted capacity. Permitted capacity is defined as 90 to 100 percent of the maximum operation rate allowed by the permit. Permitted capacity and operating data may be adjusted for the appropriate site conditions in accordance with the performance curves and/or equations on file with the Department.

If it is impractical to test at permitted capacity, an emissions unit may be tested at less than the maximum permitted capacity; in this case, subsequent emissions unit operation is limited to 110 percent of the test rate until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for

no more than 15 consecutive days for the purpose of additional compliance testing to regain the authority to operate at the permitted capacity.

If tested at less than capacity, the entire heat input versus inlet temperature curves will be adjusted by the increment equal to the difference between the design heat input value and 110 percent of the value reached during the test. Data, curves, and calculations necessary to demonstrate the heat input rate correction at both design and test conditions shall be submitted to the Department with the compliance test report.

[Rule 62-4.160(2), Rule 62-297.310(2), and Rule 62-210.200(PTE), F.A.C.; PSD-FL-146 and PSD-FL-146A (0850001-002 and 0850001-003-AC issued 9/6/96); Specific Condition No. 1. Rescission of Guidance DARM-EM-05; and Applicant Request dated April 5, 2006, Permit No. 0850001-016-AC.]

The following condition supersedes Specific Condition No. 10 of PSD-FL-146 as previously modified on September 6, 1996.

10. Compliance Test Methods: Tests shall be conducted using EPA reference methods, or equivalent, in accordance with 40 CFR 60 Appendix A.

Pollutant	EPA Reference Method	Initial testing		Annual testing	
		Gas	Oil	Gas	Oil
Particulate Matter (PM)	5 or 17		X		X
Sulfuric Acid Mist (SAM)	8		X		
Visible Emissions (VE)	9	X	X	X	X
Carbon Monoxide (CO)	10	X	X	X	X
Nitrogen Oxides (NOx)	7E, 20	X	X	X	X
Volatile Organic Compounds	18, 25 or 25A**	X	X		
	Test Method				
Lead (Pb)	EMTIC Test Method, or Method 7090, or 7091*		X		
Beryllium (Be)	EMTIC Test Method, or Method 104, or Method 7090, or 7091*		X		
Sulfur content	ASTM D 2880-96		X		X
	ASTM D 1072-90(94) E-1, ASTM D 3031-81(86), ASTM D 4084-94, or ASTM D 3246-92	X		X	
Mercury (Hg)	40 CFR 61, Appendix B EPA Reference Method 101*	X	X		

* Method 3040 sample extraction shall be used as described in the EPA solid waste regulations SW 846.

** EPA Method 18 may be conducted to account for the non-regulated methane fraction of the measured VOC emissions.

The stack test for each turbine shall be performed within 10% of the maximum heat rate input for the tested operating temperature. See Specific Condition No.1 of PSD-FL-146C for utilization of ambient temperature versus heat input curves during compliance testing.

Initial (I) compliance tests shall be performed on each Combustion Turbine using both fuels (based on information provided by the applicant, initial testing using distillate oil has not been done). It is not necessary to plan the firing of a fuel solely to complete the initial compliance test; instead, the initial test may be postponed until such time as the untested fuel is ready for service.

Annual (A) compliance tests shall be conducted for each combustion turbine to demonstrate compliance with the permitted emissions standards for normal gas firing, gas firing with power augmentation, and backup distillate oil firing. CO and NO_x performance tests shall be conducted concurrently. If conducted at permitted capacity, NO_x emissions data collected during the annual NO_x continuous monitor RATA required pursuant to 40 CFR 75 may be substituted for the required annual performance test. Tests required on an annual basis shall be conducted at least once during each federal fiscal year (October 1st to September 30th).

For each combustion turbine that fires distillate oil for less than 400 hours during the previous federal fiscal year, the annual performance tests when firing distillate oil for the current federal fiscal year of operation are not required. Combustion turbines firing more than 400 hours on oil will also be required to demonstrate compliance with PM standards.

For each combustion turbine that operates with power augmentation for less than 400 hours during the previous federal fiscal year, the annual performance tests when operating with power augmentation for the current federal fiscal year of operation are not required. During power augmentation each unit shall comply with the emissions limits stated in Specific Condition No.4 of PSD-FL-146.

[40 CFR Appendix A; Rule 62-204.800, F.A.C. and Rule 62-297.310(7)(a)4., F.A.C.; PSD-FL-146, Specific Condition No. 10; and applicant request letter dated April 5, 2006.]

MODIFICATIONS OF AIR CONSTRUCTION/PSD PERMIT 327 - COMBINED CYCLE UNIT 8

Specific conditions listed in Section III, Part A, No. 3, and No. 16, the entire Part B, and Part D, No. 1 are hereby modified; new Specific Condition No. 5 is added to Part D as shown below. Double-underline denotes additions and strikethrough (~~strikethrough~~) indicates deletions.

Section III, Part A - Combined Cycle Gas Turbines (EU 011, 012, 017 and 018)

Specific Condition No. 3 is modified as follows:

Gas Turbines: The permittee is authorized to install, tune, operate, and maintain four General Electric Model PG7241FA gas turbine-electrical generator sets each with a generating capacity of 170 MW. Each gas turbine shall include a modern ~~the Speedtronic~~TM automated gas turbine control system and have dual-fuel capability. Ancillary equipment includes an inlet air filtration system, an evaporative inlet air-cooling system, and a bypass stack for simple cycle operation. The gas turbines will utilize the ~~“hot nozzle”~~ DLN combustors, ~~which require natural gas to be preheated to approximately 290° F before combustion to increase overall unit efficiency.~~ Gas-fired Electric fuel heaters will preheat the natural gas during simple cycle operation and during startup to combined cycle operation. For full combined cycle operation, feedwater heat exchangers will preheat the natural gas.

Specific Condition No. 16.a is modified as follows:

Steam Turbine/HRSG System Cold Startup: For cold startup of the steam turbine system, excess emissions from any gas turbine/HRSG system shall not exceed ~~six~~ eight hours in any 24-hour period. Cold startup of the steam turbine system shall be completed within twelve hours. A cold “startup of the steam turbine system” is defined as startup of the 4-on-1 combined cycle system following a shutdown of the steam turbine lasting at least 48 hours. *{Permitting Note: During a cold startup of the steam turbine system, each gas turbine/HRSG system is sequentially brought on line at low load to gradually increase the temperature of the steam-electrical turbine and prevent thermal metal fatigue. Note that shutdowns and documented malfunctions are separately regulated in accordance with the requirements of this condition.}*

Specific Condition No. 16.d is modified as follows:

Fuel Switching: For ~~oil to gas~~ fuel switching (oil to gas or gas to oil), excess emissions shall not exceed one (1) hour in any 24-hour period.

The rest of Specific Condition 16 is unchanged.

Section III, Part B. Gas-Fired Fuel Heaters (EU 013)

This Part is deleted since FP&L installed Electrical Heaters to heat the fuel.

Section III, Part C. Cooling Tower (EU 020)

Specific Condition No. 1 is modified as follows:

Cooling Tower: The permittee installed one new 22-cell mechanical draft cooling tower with the following design characteristics: a circulating water flow rate of 310,000 gpm; design hot/cold water temperatures of 104° F/90° F; a design air flow rate of 1,386,055 per cell; a liquid-to-gas air flow ratio of 1.4; and drift eliminators with a drift rate of no more than 0.001 percent. ~~The permittee shall submit the final design details within 60 days of selecting the vendor.~~ [Application; Design]

(No other changes were made to Section III, Part C)

Section III, Part D. Distillate Oil Storage Tank (EU 014)

Specific Condition No. 1 is modified as follows:

NSPS Subpart Kb Applicability: The distillate oil tanks are not subject to Subpart Kb, which applies to any storage tank with a capacity greater than or equal to 10,300 gallons (40 cubic meters) that is used to store volatile organic liquids for which construction, reconstruction, or modification is commenced after July 23, 1984. Tanks with a capacity greater than or equal to 40,000 gallons (151 cubic meters) storing a liquid with a maximum true vapor pressure less than 3.5 kPa are exempt from the General Provisions (40 CFR 60, Subpart A) and from the provisions of NSPS Subpart Kb. ~~except for the record-keeping requirements specified below.~~

[40 CFR 60.110b(a) and (c) and Rule 62-204.800(7)(b), F.A.C.]

A new condition, Specific Condition No. 5, is added to Section III, Part D as follows:

Fuel Oil Records: The permittee shall keep readily accessible records showing the maximum true vapor pressure of the stored liquid. The maximum true vapor pressure shall be less than 3.5 kPa. Compliance with this condition may be demonstrated by using the information from the respective MSDS for the low or ultralow sulfur fuel oil stored in the tanks.

[62-4.070(3) F.A.C.]

{Permitting Note: An evaluation of several Material Safety Data Sheets (MSDS) by the Department demonstrated that the vapor pressure is much less than 3.5 kPa for low sulfur fuel oil and for ultralow sulfur fuel oil.}

(No other changes were made to Section III, Part D)

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

Executed in Tallahassee, Florida.



Joseph Kahn, Director
Division of Air Resource Management

CERTIFICATE OF SERVICE

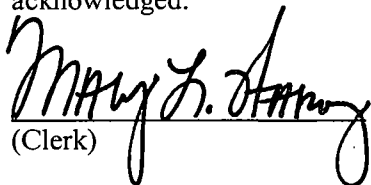
The undersigned duly designated deputy agency clerk hereby certifies that this FINAL PERMIT MODIFICATION was sent by electronic mail (with Received Receipt) before the close of business on 1/17/07 to the person(s) listed:

Craig Arcari, Florida Power & Light Company: craig_arcari@fpl.com
John Hampp, Florida Power & Light Company: john_hampp@fpl.com
Darrel Graziani, P.E., Southeast District Office: darrel.graziani@dep.state.fl.us
Jim Little, U.S. EPA, Region 4: little.james@epamail.epa.gov
Kennard F. Kosky, P.E., Golder Associates, Inc.: kkosky@golder.com
Mike Halpin, P.E., Siting Office: mike.halpin@dep.state.fl.us

Clerk Stamp

FILED AND ACKNOWLEDGMENT

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


(Clerk) 1/17/07
(Date)

FINAL DETERMINATION
Florida Power & Light Company
Martin Power Plant
DEP File No. 0850001-016-AC
Permit Modification to PSD-FL-327B and PSD-FL-146C

The Department distributed a public notice package on December 1, 2006 for modifications of certain specific conditions of the Air Construction/PSD Permits (PSD-FL-327 and PSD-FL-146). These projects, already constructed, consist of a new 1,150 MW combined cycle system ("4-on-1") designated as Unit 8 and two existing 500 MW combined cycle systems (two "2-on-1") designated as Units 3 and 4 at the FPL Martin Power Plant in unincorporated Martin County.

The Public Notice of Intent to Issue Air Permits (Air Construction/PSD Permit Modification and Title V Operation Permit Revision) was published in the Scripps Treasure Coast Newspapers on December 13, 2006. The proof of publication was received on December 20, 2006. No comments were received by the Department from the public, FP&L, EPA or any other government agencies as a result of this Public Notice.

The final action of the Department is to issue the permit modification of PSD-FL-327 and of PSD-FL-146 as noticed during the public notice period.

Adams, Patty

From: Harvey, Mary
Sent: Wednesday, January 17, 2007 3:30 PM
To: Adams, Patty
Subject: FW: Florida Power & Light Company - Martin Power Plant #0850001-016-AC-FINAL

-----Original Message-----

From: Little.James@epamail.epa.gov [mailto:Little.James@epamail.epa.gov]
Sent: Wednesday, January 17, 2007 3:29 PM
To: Harvey, Mary
Subject: Re: Florida Power & Light Company - Martin Power Plant #0850001-016-AC-FINAL

"Harvey, Mary"
<Mary.Harvey@dep
.state.fl.us>

01/17/2007 02:37
PM

James Little/R4/USEPA/US@EPA To
cc
"Heron, Teresa"
<Teresa.Heron@dep.state.fl.us>,
"Adams, Patty"
<Patty.Adams@dep.state.fl.us>
Subject
Florida Power & Light Company -
Martin Power Plant
#0850001-016-AC-FINAL

Dear Sir/Madam:

Please send a "reply" message verifying receipt of the attached document(s); this may be done by selecting "Reply" on the menu bar of your e-mail software and then selecting "Send". We must receive verification of receipt and your reply will preclude subsequent e-mail transmissions to verify receipt of the document(s).

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The document is in Adobe Portable Document Format (pdf). Adobe Acrobat Reader can be downloaded for free at the following internet site:
<http://www.adobe.com/products/acrobat/readstep.html>.

The Bureau of Air Regulation is issuing electronic documents for permits, notices and other correspondence in lieu of hard copies through the United States Postal System, to provide greater service to the applicant and the engineering community. Please advise this office of any changes to your e-mail address or that of the Engineer-of-Record.

Thank you,

DEP, Bureau of Air Regulation

[attachment "016ACFinalDetermination - Permit #0850001-016-AC-FINAL.PDF" deleted by James Little/R4/USEPA/US] [attachment "FModletter016ACLiner0 - Permit #0850001-016-AC-FINAL.PDF" deleted by James Little/R4/USEPA/US] [attachment "Signed Document for Permit #0850001-016-AC-FINAL.pdf" deleted by James Little/R4/USEPA/US]

Adams, Patty

From: Harvey, Mary
Sent: Wednesday, January 17, 2007 3:53 PM
To: Adams, Patty
Subject: FW: Martin Power Plant - Florida Power & Light Company - Permit #0850001-016-AC-FINAL

-----Original Message-----

From: Craig_Arcari@fpl.com [mailto:Craig_Arcari@fpl.com]
Sent: Wednesday, January 17, 2007 3:51 PM
To: Harvey, Mary
Subject: Martin Power Plant - Florida Power & Light Company - Permit #0850001-016-AC-FINAL

Return Receipt

Your Martin Power Plant - Florida Power & Light Company - Permit
document: #0850001-016-AC-FINAL

was Craig Arcari/PGBU/FPL
received
by:

at: 01/17/2007 03:50:41 PM

Adams, Patty

From: Harvey, Mary
Sent: Wednesday, January 17, 2007 3:17 PM
To: Adams, Patty
Subject: FW: Martin Power Plant - Florida Power & Light Company - Permit #0850001-016-AC-FINAL

-----Original Message-----

From: John_Hampp@fpl.com [mailto:John_Hampp@fpl.com]
Sent: Wednesday, January 17, 2007 3:12 PM
To: Harvey, Mary
Subject: Martin Power Plant - Florida Power & Light Company - Permit #0850001-016-AC-FINAL

Return Receipt

Your document: Martin Power Plant - Florida Power & Light Company - Permit #0850001-016-AC-FINAL

was received by: John Hampp/GC/FPL

at: 01/17/2007 03:11:36 PM

Adams, Patty

From: Harvey, Mary
Sent: Wednesday, January 17, 2007 2:47 PM
To: Adams, Patty
Subject: FW: Martin Power Plant - Florida Power & Light Company - Permit #0850001-016-AC-FINAL

From: Halpin, Mike
Sent: Wednesday, January 17, 2007 2:44 PM
To: Harvey, Mary
Subject: Read: Martin Power Plant - Florida Power & Light Company - Permit #0850001-016-AC-FINAL

Your message

To: 'craig_arcari@fpl.com'; 'john_hampp@fpl.com'; Graziani, Darrel; 'kkosky@golder.com'; Halpin, Mike
Cc: Heron, Teresa; Adams, Patty; Gibson, Victoria
Subject: Martin Power Plant - Florida Power & Light Company - Permit #0850001-016-AC-FINAL
Sent: 1/17/2007 2:31 PM

was read on 1/17/2007 2:44 PM.

Adams, Patty

From: Harvey, Mary
Sent: Wednesday, January 17, 2007 2:40 PM
To: Adams, Patty
Subject: FW: Martin Power Plant - Florida Power & Light Company - Permit #0850001-016-AC-FINAL

From: Graziani, Darrel
Sent: Wednesday, January 17, 2007 2:39 PM
To: Harvey, Mary
Subject: Read: Martin Power Plant - Florida Power & Light Company - Permit #0850001-016-AC-FINAL

Your message

To: 'craig_arcari@fpl.com'; 'john_hampp@fpl.com'; Graziani, Darrel; 'kkosky@golder.com'; Halpin, Mike
Cc: Heron, Teresa; Adams, Patty; Gibson, Victoria
Subject: Martin Power Plant - Florida Power & Light Company - Permit #0850001-016-AC-FINAL
Sent: 1/17/2007 2:31 PM

was read on 1/17/2007 2:39 PM.

Adams, Patty

From: Harvey, Mary
Sent: Wednesday, January 17, 2007 2:31 PM
To: 'craig_arcari@fpl.com'; 'john_hampp@fpl.com'; Graziani, Darrel; 'kkosky@golder.com'; Halpin, Mike
Cc: Heron, Teresa; Adams, Patty; Gibson, Victoria
Subject: Martin Power Plant - Florida Power & Light Company - Permit #0850001-016-AC-FINAL
Attachments: 0850001.016.AC.F_pdf.zip

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Thank you,

DEP, Bureau of Air Regulation

Adams, Patty

From: Harvey, Mary
Sent: Wednesday, January 17, 2007 2:37 PM
To: 'little.james@epa.gov'
Cc: Heron, Teresa; Adams, Patty
Subject: Florida Power & Light Company - Martin Power Plant #0850001-016-AC-FINAL
Attachments: 016ACFinalDetermination - Permit #0850001-016-AC-FINAL.PDF; FModletter016ACLinero - Permit #0850001-016-AC-FINAL.PDF; Signed Document for Permit #0850001-016-AC-FINAL.pdf

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DEP, Bureau of Air Regulation