

# Separation Technologies LLC

A Titan America Business



REC'D

JUN 29 2006

ENV. PROT. COMM  
OF H.C.

RECEIVED

JUL 26 2006

BUREAU OF AIR REGULATION

June 28, 2006

Ms. Diana Lee  
Chief of Air Permitting  
Environmental Protection Commission of Hillsborough County  
3629 Queen Palm Drive  
Temple Terrace, Florida 33619

Re: Construction Permit Application

Dear Mr. Farley:

Enclosed is the construction permit application fee (\$2250) for a new fly ash beneficiation facility Separation Technologies LLC (ST) is proposing to construct adjacent to the Tampa Electric Co. (TEC) Big Bend Power Station located near Apollo Beach, Florida. The application has been filed electronically using Florida's Electronic Permit and Processing (EPSAP) system (long form). The fee was calculated based on two emission units with potential emissions (PTE) between 5 and 25 tons per year (tons/yr) (\$1000 each) and one with PTE less than 5 tons/yr (\$250).

As discussed in more detail in the application, ST is applying for a permit as a separate facility based on Rule 62-210.200(126), F.A.C which defines facility as "All of the emissions units which are located on one or more contiguous or adjacent properties, and which are under the control of the same person (or persons under common control)." Because ST has exclusive ownership, control, and legal responsibility for operation and air emissions from the fly ash processing operation, we are applying as a separate facility rather than as a modification to the TEC Big Bend station.

If you have any questions, please give me a call at (781) 972-2311.

Sincerely yours,

Frank Hrach  
Director of Process Engineering

DKB/tp

Enclosure

cc: Al Linero, BAR, Tallahassee  
Patrick Shell, TEC

## Electronic Permit Submittal and Processing System (EPSAP) Professional Engineer Signature Document

"This document is signed and sealed to secure the data in this permit application and any attached files that were submitted electronically as described in Florida Department of Business and Professional Regulation, Board of Professional Engineers, Procedures for Signing and Sealing Electronically Transmitted Plan, Specifications, Reports or other Documents, Rule 61G15-23.003., F.A.C.."

**EPSAP Application Number:** 1223-1

**Facility Identification Number:** Unassigned

**Facility Owner/Company Name:** SEPARATION TECHNOLOGIES, LLC

**Purpose of Application:**

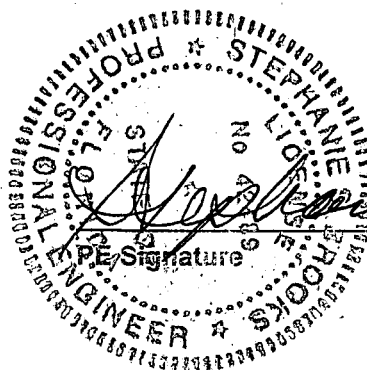
Air construction permit.

**Signature File Created:** 6/21/2006 9:28:14 AM

File Description	Authentication Code
Submitted Application Data	E7A8AD87E4AB2B312506CA007528CB2333B57A0C
Uploaded Facility Documents:	
Attachment D - Area Maps.pdf	A32EAEA10DC8EAE083C71B1CA5B6B0B63864AF4B
Attachment A--Site Plans.ppt	593111C195FB7960E3D30FB30139E4AD49B167B0
Attachment B-PFDs.pdf	CBA5B8CB29A61C965C5A7DBED409BD6D8639F4A2
Attachment C - description of proposed project- final.doc	95EC9794D2B31CC8070BC3801C35017FF6AF085D
Attachment E - Emission Calculations.xls	B5EEFD4A5598CFC40D9E6D5EF5ADC9C86E8D8413
This Application Has No Uploaded Emissions Unit Documents.	
Final Signature File	33EC73068B873A9878F7EB2516672CD3B8546C04

**Professional Engineer (PE):** STEPHANIE BROOKS License No: 042489

*(sign and affix PE seal below)*



*Stephanie Brooks PE 6/26/06*

Date

## Electronic Permit Submittal and Processing System (EPSAP) Professional Engineer Signature Document

"This document is signed and sealed to secure the data in this permit application and any attached files that were submitted electronically as described in Florida Department of Business and Professional Regulation, Board of Professional Engineers, Procedures for Signing and Sealing Electronically Transmitted Plan, Specifications, Reports or other Documents, Rule 61G15-23.003., F.A.C.."

**EPSAP Application Number:** 1223-1

**Facility Identification Number:** Unassigned

**Facility Owner/Company Name:** SEPARATION TECHNOLOGIES, LLC

**Purpose of Application:**

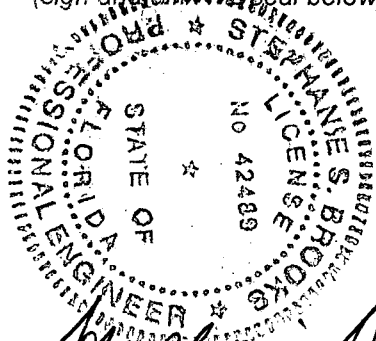
Air construction permit.

**Signature File Created:** 6/21/2006 9:28:14 AM

File Description	Authentication Code
Submitted Application Data	E7A8AD87E4AB2B312506CA007528CB2333B57A0C
Uploaded Facility Documents:	
Attachment D - Area Maps.pdf	A32EAEA10DC8EAE083C71B1CA5B6B0B63864AF4B
Attachment A--Site Plans.ppt	593111C195FB7960E3D30FB30139E4AD49B167B0
Attachment B-PFDs.pdf	CBA5B8CB29A61C965C5A7DBED409BD6D8639F4A2
Attachment C - description of proposed project- final.doc	95EC9794D2B31CC8070BC3801C35017FF6AF085D
Attachment E - Emission Calculations.xls	B5EEFD4A5598CFC40D9E6D5EF5ADC9C86E8D8413
This Application Has No Uploaded Emissions Unit Documents.	
Final Signature File	33EC73068B873A9878F7EB2516672CD3B8546C04

**Professional Engineer (PE):** STEPHANIE BROOKS License No: 042489

(sign and affix PE seal below)



PE Signature

Date



TAMPA ELECTRIC

August 18, 2006

Mr. Alvaro Linero, P.E.  
Florida Department of Environmental Protection  
111 S. Magnolia Drive  
Tallahassee, FL 32301

RECEIVED

AUG 21 2006

BUREAU OF AIR REGULATION

Via FedEx  
Airbill No. 7928 2702 2643

**Re: Request for Additional Information  
Ice and Fly Ash Beneficiation Project**

Dear Mr. Linero

We received and reviewed a copy of your July 28, 2006, letter to Mr. Patrick Borders of Separation Technologies LLC ("STI") requesting additional information on the air construction permit application that has been filed for the Fly Ash Beneficiation Project proposed to be located at Tampa Electric Company's ("TEC") Big Bend Station. As you know, the project will be owned and operated by STI, and that entity will be responding to the letter and providing the information that has been requested. On behalf of TEC however, I wanted to address some of the issues that are raised in your letter.

You have raised the concern in your letter that the STI project may more properly be considered a part of the Big Bend Station facility for purposes of permitting, rather than as a separate and distinct entity. To support that tentative conclusion, you have cited several factors, including a memo that TEC received from the Environmental Protection Agency ("EPA") addressing issues relating to the CBO system project. In that correspondence, a copy of which is attached, EPA addressed issues associated with the CBO unit and its permitting and whether it should be permitted as a stand alone system or as a part of the Big Bend Station. The relevant portions of the attached correspondence are highlighted for ease of reference.

There are distinct differences between the CBO process that was formerly under consideration and the STI process. Notably, the CBO process is a combustion process in which exhaust gas would be routed back to the Big Bend Units. One routed back, the exhaust gas would then be introduced into the boilers and routed through the pollution control devices owned and operated by TEC. Latent heat from the fluidized bed would have been utilized to heat boiler feed water and then would have been routed back to the units.

In contrast, the STI process is a belt separation process that has no combustion, no reuse of latent heat and no exhaust to route back to the Big Bend Units. The STI facility is owned and operated by STI and not by TEC. There are no pollution control devices that are shared and the STI operation is not contingent on the operation of any of the Big Bend Units. STI will be granted a license to utilize the property at the Big Bend Station, but, as noted, that project will be completely independent of TEC with its own employees and operators. STI will be responsible for all aspects of the operation, including compliance with any relevant permit conditions.

Based upon these factors, we believe that the STI process is a separate facility and should appropriately be treated as such in the permitting process.

If you have any questions please call me at (813) 635-1523.

Sincerely,

A handwritten signature in black ink, appearing to read "David M. Lukcic, P.E.", written in a cursive style.

David M. Lukcic, P.E.  
Manager, Environmental Projects

EHS/rfk/DML144

cc: Frank Harch STI



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 4  
ATLANTA FEDERAL CENTER  
61 FORSYTH STREET  
ATLANTA, GEORGIA 30303-8960

4APT-APB

MEMORANDUM

To: Interested Parties

From: Jim Little - Air Permits Section, Region 4 (404-562-9118)

Subj: Tampa Electric Company, Big Bend Carbon Burnout Project

Date: January 20, 2006

This memo addresses the question of new source review (NSR) applicability for the proposed carbon burnout project at the Tampa Electric Company (Tampa Electric) Big Bend station. This memo represents the views of the U.S. Environmental Protection Agency (EPA), Region 4, Air Permits Section.

A. Conclusions

1. The opinion of the Region 4 Air Permits Section is that the fluidized bed combustor within the carbon burnout project can be viewed as a physical change of the existing Big Bend Units 3 and 4 subject to the additional considerations below. Units 3 and 4 meet the regulatory definition of an electric utility steam generating unit (EUSGU).
2. New source review (NSR) applicability for that part of the carbon burnout project representing a physical change of Units 3 and 4 can be assessed using current Florida rules that incorporate federal WEPCO rule provisions. To assess NSR applicability for physical changes of EUSGUs, Florida rules allow comparison of actual annual emissions prior to the change with representative actual annual emissions after the change. (The definition of representative actual annual emissions is incorporated by reference to federal rules in 40 CFR 52.21 that were in effect at the time Florida's current rules were adopted. The term no longer exists in current federal rules that have not yet been implemented by Florida.)
3. Actual emissions from Units 3 and 4 prior to development of the carbon burnout project can be based on total actual emissions from Units 3 and 4 within a recent two-year period

without any adjustments that take into account the Consent Decree between the federal government and Tampa Electric Company.

B. Basis for Concluding that Fluidized Bed Combustor is a Physical Change of Units 3 and 4

1. Boiler feedwater from Units 3 and 4 will be heated by heat from the fluidized bed combustor component of the carbon burnout system. Furthermore, exhaust gases from the fluidized bed combustor will be vented through the flue gas desulfurization (FGD) system that serves to control sulfur dioxide emissions from Units 3 and 4. These gases and will then enter the atmosphere through the Units 3 and 4 stacks.
2. Consideration of the fluidized bed combustor as a modification of Units 3 and 4 would be voided if the combustor were operated when both units were not in operation. (Operation of just one unit would be acceptable.) Another way of saying this is that operation of the fluidized bed combustor in stand-alone mode would void consideration of the combustor as a physical change of Units 3 and 4. In addition, consideration of the combustor as a physical change of Units 3 and 4 would be voided if the exhaust gases from the combustor were to bypass the FGD system that serves Units 3 and 4.
3. Components of the carbon burnout system other than the fluidized bed combustor (for example, the high carbon fly ash silo and product ash storage area) should be considered as new emissions units and not as part of Units 3 and 4.

C. Calculation of Emissions Changes for NSR Applicability Purposes

1. By virtue of viewing the fluidized bed combustor as a physical change of Units 3 and 4, all regulated NSR pollutants emitted by Units 3 and 4 must be assessed for NSR applicability. In other words, the applicability assessment should not be restricted just to those regulated NSR pollutants such as nitrogen oxides (NO<sub>x</sub>) emitted from the fluidized bed combustor in greatest quantities.
2. Consistent with current Florida regulations for electric utility steam generating units, the emissions increases (or decreases) for Units 3 and 4 can be calculated by comparing actual emissions prior to the change with representative actual annual emissions after the change. (Florida has not yet adopted federal NSR rule revisions that incorporate the term "projected actual emissions" in place of "representative actual annual emissions." The terms are equivalent for purposes of this project, however.)
3. The key to NSR applicability for this project is the method for calculating past actual emissions for Units 3 and 4. Unless other considerations warrant a different approach, past actual emissions under current Florida rules for EUSGU's are the actual annualized emissions that occurred during any consecutive 24 months during the five years preceding a change.

- (a) A consideration that would warrant an adjustment to actual emissions calculated on the basis just described is a finding that past actual emissions were in violation of an air regulatory requirement. Related to this consideration, the Region 4 Air Permits Section reviewed the Consent Decree between the federal government and Tampa Electric and also reviewed the complaint and the notice of violation associated with the Consent Decree. We did not find a specific allegation that Units 3 and 4 were in violation of an air regulatory requirement.
- (b) We also took into account Condition No. 7 in Amendment 1 of the Consent Decree related to "Netting." This condition holds that netting credits are not produced by emissions reductions at the Big Bend Station unless reductions are achieved that are better than certain threshold levels specified in the condition. In our opinion, calculation of emissions increases or decreases for a changed EUSGU using the actual-to-actual approach is not a netting calculation. Therefore, Condition No. 7 is not applicable to an assessment of NSR applicability for the carbon burnout project unless the emissions change calculation procedure outlined above indicates that netting is needed as an additional step to avoid NSR.
- (c) As a further check, we reviewed the discussion on estimating EUSGU past actual emissions (also referred to as baseline emissions) that appears in the preamble to the federal WEPCO rule (57 FR 32323, July 21, 1992). In footnote 18 included with this discussion, EPA states the following: "The level of baseline emissions selected must be consistent with current assumptions regarding the source's emissions that are used under the SIP [state implementation plan] for planning or permitting purposes. Thus, the source may not select a level of baseline emissions higher than that used by the permitting authority in issuing a PSD [prevention of significant deterioration] or other construction permit to a source in the area, if such higher level would result in a NAAQS [national ambient air quality standards] or increment violation, or violate a visibility limitation." So far as we know, use of unadjusted past actual emissions from Units 3 and 4 would be consistent with this consideration. Verification by the Florida Department of Environmental Protection on this point is advisable.
4. Separate actual-to-actual emissions calculations should be made for Unit 3 and for Unit 4 unless the current title V permit for the units establishes combined emissions limits. The separate calculations would then be summed to arrive at total emissions increases or decreases from the two units. Making separate calculations may cause some difficulty in allocating the contribution from the fluidized bed combustor to each unit. Allocation on the basis of the quantity of feedwater going to each unit is a possible approach.
5. The NSR applicability assessment must include potential emissions from all components of the carbon burnout project other than the fluidized bed combustor. Therefore, the overall increase or decrease in emissions from the carbon burnout project consists of the actual-to-actual emissions change for Units 3 and 4 plus the potential emissions from the non-combustor components of the carbon burnout project.



D. Project Sequence Consideration

To take credit for any reductions in emissions from Unit 3 or Unit 4 when assessing NSR applicability for the carbon burnout project, these reductions must occur before emissions from the carbon burnout project begin. We understand that reductions from Unit 4 will occur before the carbon burnout project begins operation.

E. Use of Unit 3 and Unit 4 Selective Catalytic Reduction Systems

Tampa Electric has expressed concern about the feasibility of routing exhaust gases from the carbon burnout fluidized bed combustor through the Unit 3 and Unit 4 selective catalytic reduction (SCR) systems. Such routing would allow NO<sub>x</sub> emissions from the combustor to be at least partially controlled. We recommend that further consideration be given to the feasibility of controlling combustor NO<sub>x</sub> emissions continuously by SCR. As an alternative, further consideration should be given to the feasibility of selectively routing combustor exhaust gases through the SCR systems when doing so will not interfere with Units 3 and 4 boiler or SCR operation.

COMMISSION  
Brian Blair  
Rose V. Ferlita  
Ken Hagan  
Al Higginbotham  
Jim Norman  
Mark Sharpe  
Kevin White



Executive Director  
Richard D. Garrity, Ph.D.

Roger P. Stewart Center  
3629 Queen Palm Dr. • Tampa, FL 33619  
Ph: (813) 627-2600  
Fax Numbers (813):  
Admin. 627-2620 Waste 627-2640  
Legal 627-2602 Wetlands 627-2630  
Water 627-2670 ERM 627-2650  
Air 627-2660 Lab 272-5157

**RECEIVED**

**AUG 25 2008**

ENVIRONMENTAL PROTECTION COMMISSION OF  
HILLSBOROUGH COUNTY, as Delegated by

**BUREAU OF AIR REGULATION**

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

**NOTICE OF PERMIT AMENDMENT**

**CERTIFIED MAIL**

Patrick Borders  
President  
Separation Technologies, LLC  
6071 Catawba Road  
Troutville, VA 24174

Re: Hillsborough County Air Permitting  
0571326-001-AC

Dear Mr. Borders:

On February 29, 2008, the Environmental Protection Commission of Hillsborough County (EPC) received the time extension request for Permit No. 0571326-001-AC. As requested, the expiration date is changed as follows:

CHANGE FROM: March 30, 2008

CHANGE TO: May 30, 2009

In addition, at the request of FDEP-Tallahassee, Specific Condition No. 15 of Permit No. 0571326-001-AC is being revised as follows:

15. In order to provide reasonable assurance to avert emitting the unknown portion of removed power plant mercury (Hg) that may enter the cement process via use of high Loss on Ignition (LOI) fly ash, the facility shall comply with the following conditions: [Rule 62-4.070(3), F.A.C. and FDEP's Mercury Control Initiatives, December 19, 2006 (Appendix ST-Hg-1)]

a. Upon commencing operation of the facility, the owner or operator shall collect samples of the fly ash feed, and the two product streams each day. At the end of each month, the owner or operator shall create a composite monthly sample for each of the

www.epchc.org  
E-Mail: [epcinfo@epchc.org](mailto:epcinfo@epchc.org)

AN AFFIRMATIVE ACTION - EQUAL OPPORTUNITY EMPLOYER



Printed on recycled paper.

three streams (fly ash feed, fuel, and two product streams). Within 15 days of the end of each month, each composite sample shall be analyzed to determine the mercury concentration of the materials for each month. In addition, the loss on ignition (LOI) of the composite monthly samples of the fly ash feed and the two product streams shall be determined. The analytical methods used to determine mercury concentration shall be EPA or ASTM methods such as EPA Method 7471A (Mercury in Solid or Semisolid Waste). The analytical method used to determine LOI shall be ASTM Standard C 311 (Loss on Ignition Test for Fly Ash). No other methods may be used unless prior written approval is received from the Department of Environmental Protection's Emission Monitoring Section. If the mercury concentration is below the detection limit or below the limits of quantification, the detection limit will be the assumed concentration for that sample.

b. For the first month's composite samples, the owner or operator shall provide split samples with the Department/EPC for separate analysis by the Department/EPC. The owner or operator shall provide split samples thereafter upon request by the Department or EPC.

c. The owner or operator shall maintain daily records of the flyash feed used and the mass of the two product streams generated. These records shall be made available to the Department and EPC upon request.

d. The owner or operator shall calculate a monthly mercury emission rate (lbs mercury/ month) each month for each of the three streams by multiplying mercury concentration from the each monthly composite sample by the mass amount of the respective stream.

e. Within 30 days of receiving the monthly composite sampling test report results, the owner or operator shall submit a copy of the test report, the monthly mercury emission rate for each stream, the LOI of the fly ash and product streams, and calculations thereof to the Department's Bureau of Air Regulation and the EPC. In addition, records for the tons of the fly ash feed and the two product streams shall be included in this report.

f. A consecutive 12-month mercury throughput rate for each of the three streams shall be the sum of the respective individual monthly records for the current month and the preceding eleven months (pounds of mercury per consecutive 12-months). Such records, including calculations and data, shall be completed no later than 25 days following the month of the records and shall be submitted to the Department and EPC.

g. The owner or operator shall maintain records of the shipment of the high LOI product and where possible indicate the ultimate user and shall submit the records to the Department and EPC upon request.

h. The owner or operator shall submit the records required by Specific Condition Nos. 15.e. and 15.f., to the Department and the EPC, starting from the first month that material started being processed through June 2008, within 15 days of receipt of the Permit Amendment. Subsequent monthly test reports and records shall be submitted in accordance with Specific Condition Nos. 15.e. and f.

NEDS NO.: 1326

Emission Unit Nos.: 001 – Raw Feed Fly Ash Handling and Carbon Separation  
002 - Ammonia Removal  
003 - Product Storage and Loadout

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

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed (received) in the Legal Department of the EPC at 3629 Queen Palm Dr., Tampa, Florida 33619, Phone 813-627-2600, Fax 813-627-2602. Petitions filed by the permit applicant or any of the parties listed below must be filed within 14 (fourteen) days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under Section 120.60(3), F.S. must be filed within 14 (fourteen) days of publication of the public notice or within 14 (fourteen) days of receipt of this notice of intent, whichever occurs first. Under Section 120.60(3), however, any person who asked the EPC for notice of agency action may file a petition within 14 (fourteen) days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above, at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S.; or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

A petition that disputes the material facts on which the EPC's action is based must contain the following information:

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

wishes the EPC to take with respect to the EPC's proposed action.

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

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

Mediation under section 120.573, F.S. is not available in this proceeding.

This action is final and effective on the date filed with the Clerk of the EPC unless a petition is filed in accordance with above. Upon the timely filing of a petition, this order will not be effective until further order of the EPC.

Any person listed below may request to obtain additional information, a copy of the application (except for information entitled to confidential treatment pursuant to Section 403.111, F.S.), all relevant supporting materials, and all other materials available to the EPC that are relevant to the permit decision. Interested persons may contact Diana M. Lee, P.E., at the above address or call (813) 627-2600, for additional information.

Any party to this order has the right to seek judicial review of it under Section 120.68 of the Florida Statutes, by filing a notice of appeal under rule 9.110 of the Florida rules of Appellate Procedure with the EPC's Legal Office at 3629 Queen Palm Dr., Tampa, Florida 33619 and 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.

This letter must be attached to and becomes a part of permit number 0571326-001-AC. If you have any questions, please call Lora Webb of my staff at (813) 627-2600 x1287.

Sincerely,



Jerry R. Campbell, P.E.

Director

Air Management Division

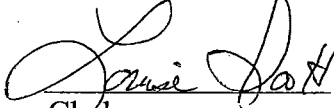
JRC/LAW/law

cc: Trina Vielhauer - FDEP

CERTIFICATE OF SERVICE

This is to certify that this NOTICE OF PERMIT AMENDMENT and all copies were mailed before the close of business on August 21, 2008 to the listed persons.

FILING AND ACKNOWLEDGEMENT  
FILED, on this date, pursuant to Section  
120.52(7), Florida Statutes, with the clerk,  
receipt of which is hereby acknowledged.

 August 21, 2008  
Clerk Date