



# Department of Environmental Protection

Jeb Bush  
Governor

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Colleen M. Castille  
Secretary

July 28, 2006

## CERTIFIED MAIL - RETURN RECEIPT REQUESTED

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

Re: Request for Additional Information  
Air Construction Permit Application  
Fly Ash Beneficiation Project at the Tampa Electric Company (TEC) Big Bend Station

Dear Mr. Borders:

The Department is in receipt of your air construction permit application for the subject project that proposes the construction of a new fly ash handling, storage, beneficiation, and loadout system on a portion of property at the Tampa Electric Company (TECO) Big Bend Station. The application is incomplete and the Department will require additional information as described in the following pages.

The application was initially received by the Hillsborough County Environmental Protection Commission (EPC). It has been reassigned to this office based on our very recent experience with other fly ash beneficiation systems proposed for the Big Bend Station and our present opinion that the latest proposal will be a part of the same facility. The Department is responsible for air permitting related to actions at certain power plants, especially those subject to the Clean Air Act Title IV Acid Rain Program or the Florida Power Plant Siting Act.

According to the application, the fly ash handling system will be exclusively owned and operated by Separation Technologies LLC, with no management involvement by TEC. We recently issued a Preliminary Determination and a Draft Permit to TECO for construction of a Carbon Burnout (CBO) system at the Big Bend Station for the purpose of beneficiating the same fly ash that the ST removal process will handle. Progress Materials, an affiliate of Progress Energy, was going to operate the system on the Big Bend site in much the same way that ST proposes to operate the alternative system that is now proposed.

EPA provided opinions to TECO and the Department to the effect that the CBO system is a modification of the existing unit(s) at TECO. Based on all of the facts, the Department concluded that the CBO system would actually have been part of the Big Bend Station and not a separate facility as proposed for the alternative ST system.

Similarly, ST operates a fly ash beneficiation system at the St. John's River Power Park /JEA Northside Facility in Duval County. The Department previously concluded that that the ST system located at that site is also part of the SJRPP/JEA Northside facility.

The following information is required before we can review the application:

1. What is the dependency of one facility on the other? If one shuts down, what are the limitations on the other one to pursue outside business interests?
2. Does one operation support the operation of the other in any significant manner? What are the financial arrangements between the two entities?
3. Do the facilities share equipment, other property, or pollution control equipment? What does the contractual arrangement specify with regard to the pollution control responsibilities of the contractee? Can the managing entity of one facility make decisions that affect pollution control at the other facility?
4. Who accepts the responsibility for compliance with air quality control requirements? What will be done about response and corrective actions for violations of the requirements?
5. Do the facilities share common workforces, plant managers, security forces, corporate executive officers, or board executives?
6. Will the needed site be leased? If so, please indicate the number of years the lease will be in effect.
7. How will electrical power and other needed resources (water, waste disposal, etc.) be supplied and managed (i.e., what are the respective roles of Separation Technologies LLC vis-à-vis TEC)? What are your estimates of these resources?
8. How will maintenance activities be handled for any interfacing systems and equipment between Separation Technologies LLC and TEC operations?
9. Please provide the detailed computations and sources of all data that were used to develop the pollutants' potential to emit (PTE) estimates for the emissions units.
10. Please review and respond to the questions in the attachment provided by the Hillsborough County EPC. They developed these questions when they were responsible for the permitting action.
11. Please advise whether mercury (Hg) will be present in the fly ash that will be treated by the ST system.
12. If present, submit a process diagram and explanatory tables showing flow rates, etc. that track Hg through the system. Show the amounts that exit with the mineral fraction versus the carbonaceous fraction.
13. We understand that the mineral fraction will be sold for likely use as a constituent in concrete. Where will the carbonaceous fraction be used? What is the minimum and maximum amount that would be used at the Big Bend Station as fuel? What amounts of the carbonaceous fraction are likely to go to cement plants?

14. Provide several small samples of the product mineral fraction and carbonaceous fraction, for example from the St. Johns River Power Park/JEA Northside facility. We can discuss the sample handling protocol with you.

When we receive this information, we will continue processing your application. We are available to discuss the details of our request for additional information. Rule 62-4.050(3), F.A.C. requires that all applications for a Department permit must be certified by a professional engineer registered in the State of Florida. This requirement also applies to responses to Department requests for additional information of an engineering nature. Permit applicants are advised that Rule 62-213.420(1)(b), F.A.C., requires applicants to respond to requests for information within 90 days, unless the applicant has requested in writing, and has been granted, additional time within 90 days.

If you have any questions, please contact Tom Cascio at 850-921-9526.

Sincerely,



A. A. Linero, Program Administrator  
Permitting South Section

AAAL/tc

cc: D. Kent Berry, EQM  
Stephanie Brooks, P.E., Brooks and Associates  
Karen Sheffield, TECO  
Greg Nelson TECO  
Buck Oven, DEP-OSC  
Jerry Campbell, EPCHC

## Questions and Comments from Hillsborough County Environmental Protection Commission

1. On July 6, 2006, the EPC sent a letter and provided a list of neighborhood organizations that requires Separation Technology (ST) to give written notification of the proposed project to the listed organizations. The letter also requires that ST must send written evidence to the EPC within 10 days of receipt of the list pursuant to the EPC Rule, Chapter 1-3.24(1). The EPC has not received any written evidence from ST. Therefore, it is unclear whether these listed neighborhood organizations are aware of the proposed construction project. Please submit the written evidence as required.
2. In Attachment C of the Application, ST states, "the facility will be on the edge of the TEC property". A review of the site plan provided with the Application showed that the facility will be spread over wide areas of the TECO Big Bend property. In addition, the ST Carbon Separation and Storage System Process Flow Diagram, it shows that all the fly ash for the facility will be pneumatically loaded from TECO's three existing fly ash silos. According to the Letter from JoAnn Heiman, EPA Region 7 to James Pray, Baskerville and Schoenebaum, P.L.C. regarding "Support Facility" (December 6, 2004), EPA states, "pollutant-emitting activities are generally considered part of a single stationary source when these activities are (1) part of the same industrial grouping (as determined by applicable SIC codes), (2) contiguous or adjacent, and (3) under common control. In several guidance documents, EPA has recognized that one or more of these criteria can be satisfied when an emissions unit is a "support facility" or serves in a supporting role for a primary activity at a nearby location". "Once two sources are found to be contiguous or adjacent by virtue of their proximity and interaction with one another, the focus may shift to the nature of that interaction and how they may control or support each other. This usually requires a case by case evaluation to determine if common control is present. Even where facilities have separate legal owners, EPA has found that common control may be established on the basis of a contract which creates a support or dependency relationship between the facilities". The Letter then gives an example of a fuel oil supplier that is adjacent to another company which fires the supplier's fuel oil, the EPA states, "As long as the oil supply vendor and industrial facility do not "exercise restraining or directing influence over," "have power over," "have power of authority to guide or manage," or "regulate economic activity over" each other, based on the various factors described in previous EPA guidance, it is likely that the common control link would be broken and the two sources would not be considered a single source for permitting purposes". In the case of a grain supplier and an ethanol plant, the EPA states, "if an ethanol plant is purchasing grain on the open market and accepts delivery from a number of different suppliers in minority proportions, then there would typically be no basis for a common control determination. Therefore, as long as the traditional commodity transactions between the country elevators and the ethanol plant occur at arms length, the grain suppliers would likely not be considered to be under common control for permitting purposes. On the other hand, if a grandfathered grain elevator executes a contractual agreement with an adjacent or contiguous greenfield ethanol plant to provide the bulk of its output, then it may be more difficult to demonstrate that the two entities are not under common control". Furthermore, the letter further states, "Finally, it is important to note that what an ethanol plant can do and what it actually does when making its grain purchase decisions may affect whether common control or a support facility relationship exists or not. for example, if an ethanol plant purchases grain from an array of local country grain elevators, such transactions appear to occur within the commodity scheme you suggest. However, if an ethanol plant has many supply choices but instead opts to enter into contracts to purchase only from the elevator next door, then such transactions may appear to be

more like two sources acting as one". Based on this guidance, it is EPC staff's opinion that the ST Fly ash Beneficiation Facility and the TECO Big Bend facility are contiguous or adjacent and under common control.

With respect to the same industrial grouping, the Letter states, *"If the facts of a case-by-case evaluation show the common control of two contiguous or adjacent plants, we would then turn our attention to whether the installations share a common standard industrial classification code. In most cases where they operate independently, the ethanol plants and grain suppliers are not likely to share a common standard industrial classification (SIC) code. Ethanol plants are typically found in Group 28 for chemical manufacturing. Grain handling is typically found in Groups 20 or 51 depending on the nature of the operation. However, a support facility may be considered to be a part of the same major group as the primary facility it supports even if the support facility would be classified in a separate group when operated independent. In addition, the Letter states, "Support facility determinations can depend upon a number of financial, functional, contractual, and/or other legal factors. These include, but are not limited to: (1) the degree to which the supporting activity receives materials or services from the primary activity (which indicates a mutually beneficial arrangement between the primary and secondary activities); (2) the degree to which the primary activity exerts control over the support activity's operations; (3) the nature of any contractual arrangements between the facilities; and (4) the reasons for the presence of the support activity on the same site as the primary activity (e.g., whether the support activity would exist at that site but for the primary activity). Where these criteria indicate a support relationship, permitting authorities may conclude that a support activity contributing more or less than 50% of its output may be classified as a support facility and aggregated with the facility it supports as part of a single source."* It appears from your application that 100% of the fly ash for your facility will be supplied by the TECO Big Bend facility. Therefore, in order to determine whether the ST Flyash Beneficiation Facility is a "support facility" for the TECO Big Bend facility, please provide a copy of the contract between the two companies.

3. According to Attachment B, Process Flow Diagrams, ST Carbon Separation and Storage Systems of the Application, the following detailed information and/or diagrams need to be provided:
  - a) The emission point e listed in the Attachment E – Emission Calculation and Stack Data is not shown on the Attachment B, Process Flow Diagrams, ST Carbon Separation and Storage Systems. Please clarify.
  - b) Please clarify and indicate where are emission points g and h listed in the Attachment E – Emission Calculation and Stack Data.
  - c) Separator B Feed Tank is not shown in the Attachment B, Process Flow Diagrams, ST Carbon Separation and Storage Systems.
  - d) Should these points be considered as transfer/drop points when materials are dropped into the bins or hoppers before the pumps from Separators A, B or C? If they are, emission estimate should be included.
  - e) All the truck loadout points associated with the new Silos 4 and 5 should be considered as emission points and the emission estimate should be included in the application.

4. Pursuant to the information contained in Attachment B, Process Flow Diagrams, ST Ammonia Removal Systems of the Application, please provide a detailed description of how the material is transferred through the lime feeder, fly ash transfer screw conveyor and dryer feeder screw conveyor, along with the associated controls.
5. The submitted Attachment E – Emission Calculation and Stack Data only provides a description of each emission point and stack dimensions. Please provide emission calculations of each emission unit as required.
6. In the Application under the EU, Raw Feed Flyash Handling and Carbon Separation System, you requested a maximum throughput and hours operation of 90 ton/hr and 8760 hr/yr. This results in a maximum annual throughput of 788,400 tons/yr. However, you have also requested a maximum annual throughput of 305,000 tons under the Segment page. Please clarify which maximum annual throughput and hours operation are being requested.
7. In the Application under the EU, Ammonia Removal System, the maximum throughput of 52 tons/hr is requested. However, a maximum annual throughput of 244,000 tons material processed is also requested under the Segment page. Please clarify how these numbers are determined, and also what is the quantitative relation for the throughput between the two EUs, Raw Feed Flyash Handling and Carbon Separation System and Ammonia Removal System.
8. ST also requested a maximum annual natural gas usage, 52 MMCF/yr, burned through the dryer with a maximum heat input of 15 MMBtu/hr. Please provide emission calculations for any other pollutants in addition to the PM under this EU should be estimated and the calculation should be included in the application. In addition, you stated the potential emissions for the dryer will be 1.4 lb/hr, 6.18 tons/yr with a grain loading of 0.006 gr/dscf, which according to you is based on knowledge of the process and vendor guarantee. On the Attachment C of the Application, you stated that a full scale ammonia removal system is currently operating at St. Johns River Power Park in Jacksonville, Florida. In order to provide reasonable assurance of compliance with the requested emissions rates, please provide a copy of the vendor guarantee, along with any emissions testing conducted at the St. Johns River Power Park in Jacksonville, Florida in accordance with Rule 62-4.070(3), F.A.C.
9. The Emissions Unit Capacity Information page is missing for the EU, Product Storage and Loadout. Please provide the information as required.
10. The permit application fee, \$2,250.00, was submitted to the EPC based on two baghouses (BH). Please state which emission points will be controlled by these BHs. Please provide manufacturer's design specifications and parameters (i.e. cloth to air ratio, control efficiency, flow rate, etc.) for the BHs. In addition, the Process Flow Diagrams for the ST Carbon Separation and Storage and Ammonia Removal Systems show a number of Bin Vent Filters controlling PM emissions from the various material handling sources. Please provide manufacturer's design specifications and parameters (i.e. cloth to air ratio, control efficiency, flow rate, etc.) for the Bin Vent Filters, along with PTE PM emissions calculations.
11. In your Application you stated the potential PM emissions from the Raw Feed Flyash Handling and Carbon Separation System will be 1.3 lb/hr, 5.5 ton/yr with a grain loading of 0.008 gr/dscf, which according to you is based on knowledge of the process and vendor guarantee. On the Attachment C of the Application, you stated that a full scale ammonia removal system is currently operating at St.

Johns River Power Park in Jacksonville, Florida. In order to provide reasonable assurance of compliance with the requested emissions rates, please provide a copy of the vendor guarantee, along with any emissions testing conducted at the St. Johns River Power Park in Jacksonville, Florida in accordance with Rule 62-4.070(3), F.A.C.

12. The ST Carbon Separation and Storage System Process Flow Diagram shows that all the fly ash for the facility will be pneumatically loaded from TECO's three existing fly ash silos at a maximum throughput rate and hours operation of 90 ton/hr and 8760 hr/yr, which results in a maximum annual throughput of 788,400 tons/yr. According to TECO's Title V Permit for the Big Bend Facility, the maximum silo handling rate for both Flyash Silo No.1 and Silo No.2 is 89 ton/hr. However, there is no maximum silo handling rate for Flyash Silo No.3. In addition, there are no annual restrictions on hours operation, or throughput. Since the ST Flyash Beneficiation Facility may be a "support facility" for the TECO Big Bend facility. Please explain how continuously pneumatically transferring fly ash from the existing TECO Big Bend silos to the ST Flyash Beneficiation Facility will not "debottleneck" the Big Bend facility.
13. In Attachment C of the Application you state that two options were considered for handling the recovered ammonia gas. Option 1, which was selected, involves recycling the ammonia gas to the power station flue gas duct for reuse via an ammonia return pipeline. Option 2 involves oxidative destruction of the recovered ammonia in the dryer exhaust to produce nitrogen and heat. You further state that because Option 2 is a new approach, you plan to pilot the equipment for effectiveness. Please provide design information on the pumps and equipment that will be used to transport the recovered ammonia to the Big Bend facility. In addition, please explain why both facilities should not be considered as a single facility for PSD purposes, seeing that the ST Flyash Beneficiation facility will be completely integrated into the emissions control system of the Big Bend facility.

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Mr. **Patrick Borders, President**

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