TECHNICAL EVALUATION

APPLICANT

Tampa Electric Company
702 North Franklin Street
Tampa, Florida 33602

Big Bend Station (BBS)
Facility ID No. 0570039

PROJECT

Project No. 0570039-057-AC
Supplemental Material Handling J3 Conveyor System

COUNTY

Hillsborough County, Florida

PERMITTING AUTHORITY

Florida Department of Environmental Protection
Division of Air Resource Management
Office of Permitting and Compliance
Power Plants Group
2600 Blair Stone Road, MS#5505
Tallahassee, Florida 32399-2400

May 1, 2012

1. GENERAL PROJECT INFORMATION

Air Pollution Regulations

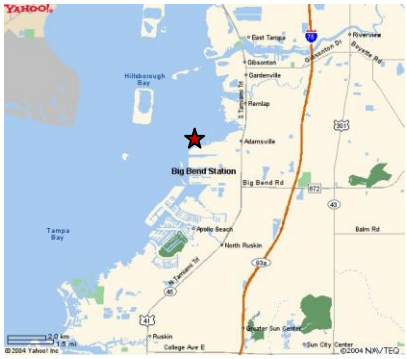
Projects at stationary sources with the potential to emit air pollution are subject to the applicable environmental laws specified in Section 403 of the Florida Statutes (F.S.). The statutes authorize the Department of Environmental Protection (Department) to establish regulations regarding air quality as part of the Florida Administrative Code (F.A.C.), which includes the following applicable chapters: 62-4 (Permits); 62-204 (Air Pollution Control – General Provisions); 62-210 (Stationary Sources – General Requirements); 62-212 (Stationary Sources – Preconstruction Review); 62-213 (Operation Permits for Major Sources of Air Pollution); 62-296 (Stationary Sources - Emission Standards); and 62-297 (Stationary Sources – Emissions Monitoring). Specifically, air construction permits are required pursuant to Rules 62-4, 62-210 and 62-212, F.A.C.

In addition, the U. S. Environmental Protection Agency (EPA) establishes air quality regulations in Title 40 of the Code of Federal Regulations (CFR). Part 60 specifies New Source Performance Standards (NSPS) for numerous industrial categories. Part 61 specifies National Emission Standards for Hazardous Air Pollutants (NESHAP) based on specific pollutants. Part 63 specifies NESHAP based on the Maximum Achievable Control Technology (MACT) for numerous industrial categories. The Department adopts these federal regulations on a quarterly basis in Rule 62-204.800, F.A.C.

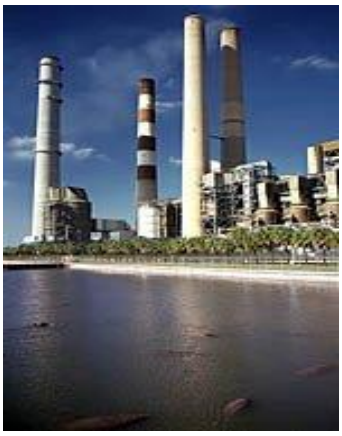
Glossary of Common Terms

Because of the technical nature of the project, the permit contains numerous acronyms and abbreviations, which are defined in Appendix A of this permit.

Facility Description and Location



Big Bend Station (BBS) is grouped with Electric, Gas and Sanitary Services, which is categorized under Standard Industrial Classification Code (SIC) No. 4911. The existing Big Bend Station is located in Hillsborough County at 13031 Wyandotte Road in Apollo Beach, Florida. The UTM coordinates of the existing facility are Zone 17, 363.15 km East, and 3074.91 km North.



The Big Bend Station is a nominal 2,028 megawatt (MW) electric generation facility. This facility consists of four fossil fuel fired steam generators, Boiler Unit Nos. 1 through 4; four steam turbines; two simple-cycle combustion turbines (CT), CT Nos. 4A and 4 B; solid fuels, fly ash, limestone, gypsum, slag, and bottom ash storage and handling facilities; ship surface coating operations; and, fuel oil storage tanks. Unit Nos. 1, 2, 3 and 4 have manufacturer rated heat inputs of 4,037, 3,996, 4,115 and 4,330 million British thermal units (Btu) per hour, respectively. Unit Nos. 1 through 4 are fired with coal and with petcoke in a mixture with coal up to 20.0% petcoke/80.0% coal (by weight), or a coal blended with coal residual generated from the Polk Power Station or other suppliers of coal residual, or a coal/petroleum coke blend further blended with coal residual generated from the Polk Power Station or other suppliers of coal residual. The combustion turbine is fired with No. 2 distillate fuel oil. In addition, there is a ship surface coating operation. Also included in this permit are miscellaneous unregulated/insignificant emissions units and/or activities.

Facility Regulatory Categories

- The facility is a major source of hazardous air pollutants (HAP).
- The facility operates units subject to the acid rain provisions of the Clean Air Act.
- The facility is a Title V major source of air pollution in accordance with Rule 62-213, F.A.C.

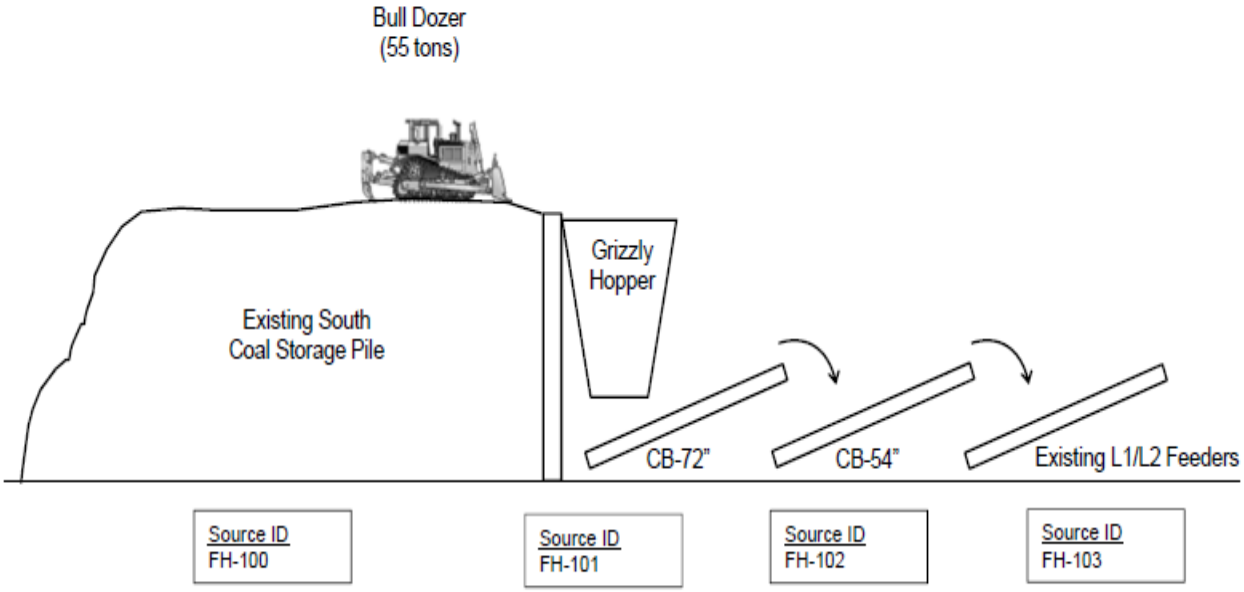
- The facility is a major stationary source in accordance with Rule 62-212.400, F.A.C. for the Prevention of Significant Deterioration (PSD) of Air Quality.
- The facility is subject to applicable New Source Performance Standards (NSPS) in Title 40, Part 60 of the Code of Federal Regulations.
- The facility is subject to applicable National Emissions Standards for Hazardous Air Pollutants (NESHAP) in Title 40, Part 63 of the Code of Federal Regulations.
- This facility is located in an area designated "unclassifiable" for SO_2, "maintenance" for Ozone (O_3), and lead (Pb), in the "area of influence" of the PM maintenance area and "attainment" for all the other criteria pollutants pursuant to Rule 62-204.340, F.A.C.

Project Description

TECO proposes to construct a supplemental material handling conveyor system (J3 Conveyor System) at their Solid Fuel Coal Yard.

TECO states that the J3 Conveyor System can be utilized to feed coal, coal blends, and supplemental coal additives. Heavy equipment, such as bull dozers or similar equipment, will advance coal, coal blends or supplemental coal additives to the grizzly in-feed hopper (FH-100 and FH-101, dozer operations and grizzly hopper fugitive emissions) from the south coal pile. The material is fed by the grizzly hopper onto a 72" covered belt conveyor (FH-101) and is then conveyed to a 54" covered belt conveyor (FH-102). Finally, the coal, or supplemental material, will be conveyed to a new enclosed hopper at the existing K feeders (FH-103) (which feed into the existing enclosed L1 and L2 conveyors). The combination of the grizzly hopper, the 72" belt conveyor and the 54" belt conveyor will be collectively referred to as the J3 Conveyors. All drop points within the new conveyor system will be completely enclosed with no regular emissions to the atmosphere.

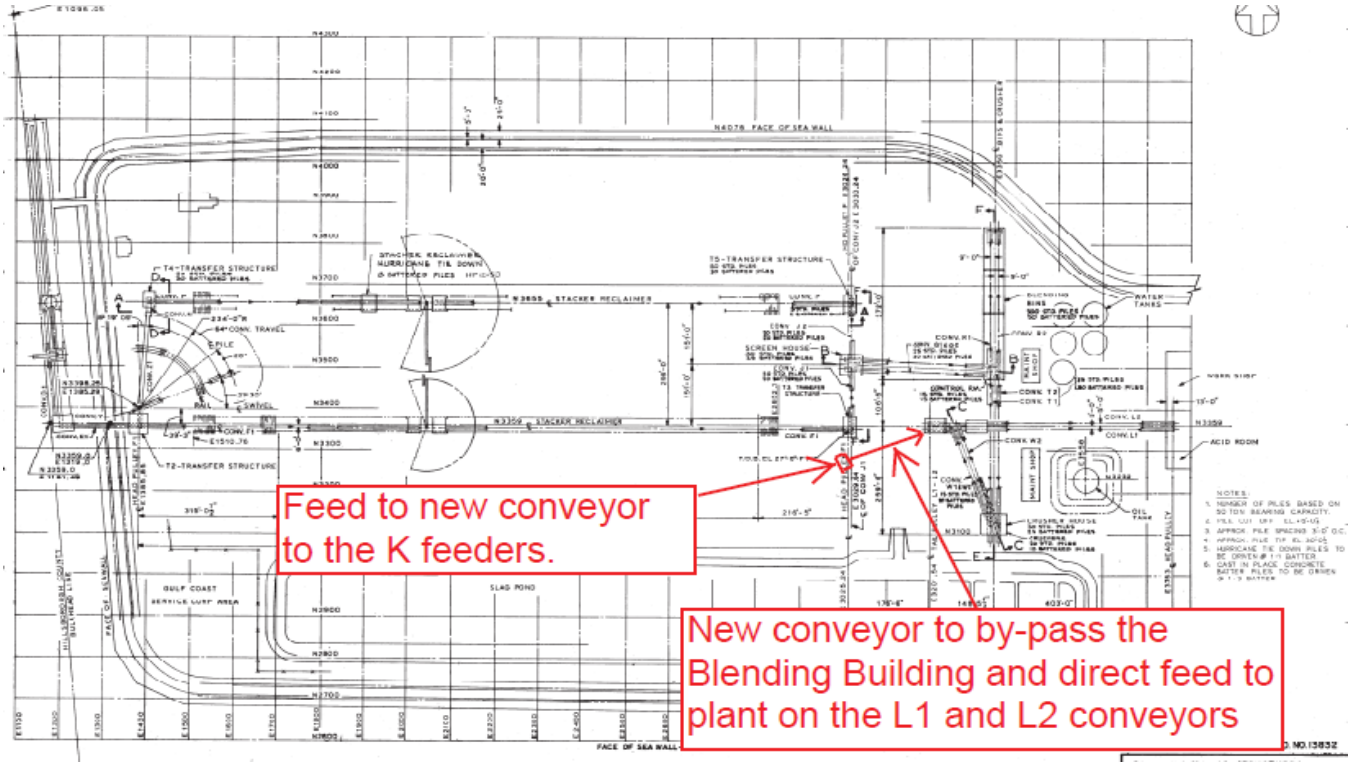
Proposed Supplemental Material Conveyance System



The existing in-feed hoppers (for conveyors L1 and L2) consist of four (4) K feeders (K1A, K1B, K2A, K2B). Feeders K1A and K2A will remain in place to convey beneficiated fly ash to the two L conveyors. Feeders K1B

and K2B will be dismantled and replaced by a new enclosed hopper to accommodate the full 2,000 tons per hour (TPH) conveying capabilities of the new J3 conveyors.

BBS Conveyor Systems Layout and Proposed J3 Conveyors



The J3 Conveyor System will serve as a supplemental conveyance system for coal, coal blends and coal supplemental additives (such as limestone, flux, magnesium oxide, petroleum coke, ecotherm) for use with the existing conveyance feed system. In the event the use of an existing back up coal conveyor system or related equipment is warranted, the J3 Conveyor System will be available to operate continuously. The maximum throughput rate is designed for 2,000 TPH of solid materials, which is about half of the feed rate of the primary (existing) conveyor systems.

The following existing emissions unit is affected by this project:

E.U. ID No.	Brief Description
Solid Fuel Yard	
-010	Fugitive Emissions from Fuel Unloading and Handling Operations

This existing emissions unit consists of solid fuel handling and storage activities at the Big Bend Station. Solid fuel (consisting primarily of coal and petcoke) is unloaded from ships and barges into the solid fuel yard, the blending bins or directly to the tripper room via belt conveyors. Solid fuel may also be received and unloaded by railcar and conveyed to the fuel yard. Solid fuel from the piles is loaded onto belt conveyors using a rail mounted or mobile reclaimer. The solid fuel is then belt conveyed to the blending bins, which consists of six storage bins, where the solid fuel may be blended for use at the plant, or transloaded into trucks for shipment off site.

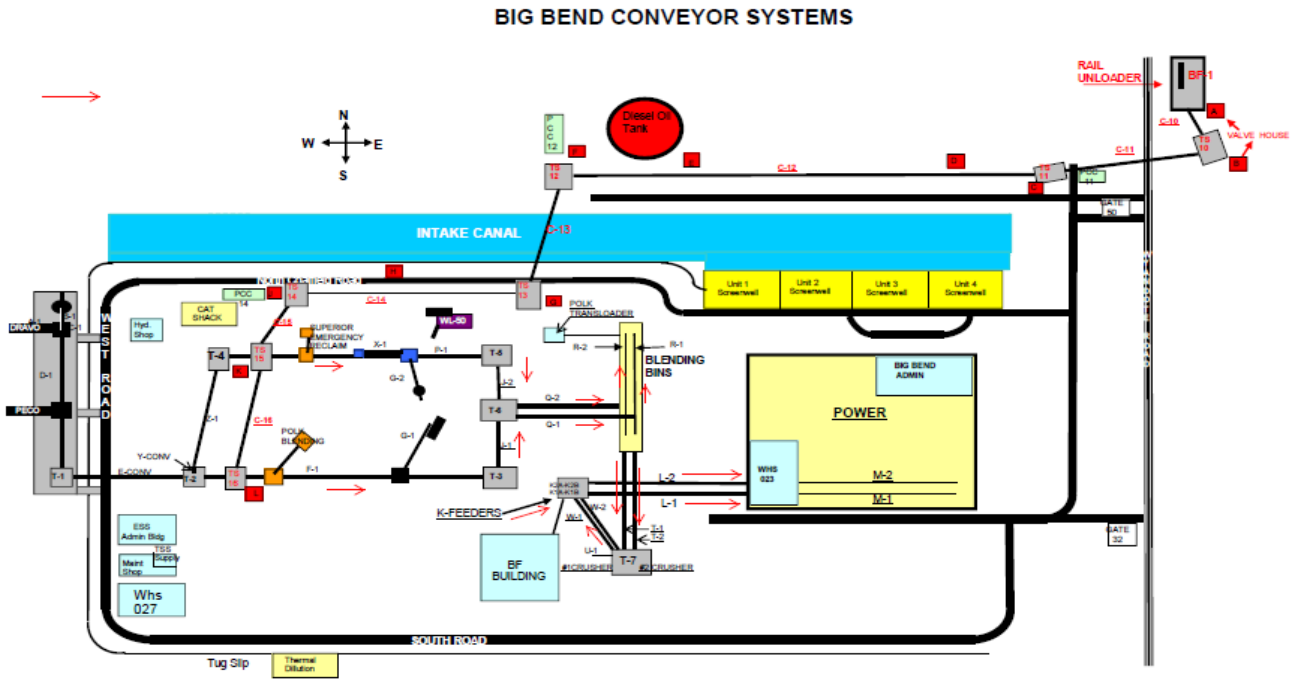
TECO is adding the following new emissions unit to the Solid Fuel Yard:

E.U. ID No.	Brief Description
Solid Fuel Yard	
-048	Supplemental Material Handling Conveyor System or J3 Conveyors

The new emissions unit is comprised of the following new emissions points for the supplemental material conveyance system:

Point ID	Description of Emissions Point
Supplemental Material Handling Conveyor System (J3 conveyors)	
FH-100	Dozer Stock Pile Operations (unconfined fugitive emissions)
FH-101	Dozer Operations to Grizzly Hopper (unconfined fugitive emissions)
FH-102	J3 Conveyor System (enclosed static drop point)
FH-103	J3 Conveyor System to "K" Feeders to L1 or L2 (enclosed static drop point)

This project also involves physical changes to the existing hopper arrangement at the K feeders (emission point FH-058 as shown in the diagram below):



Processing Schedule

03/09/2012 Received application for a minor source air pollution construction

03/09/2012 Application deemed complete.

2. PSD APPLICABILITY

General PSD Applicability

For areas currently in attainment with the state and federal AAQS or areas otherwise designated as unclassifiable, the Department regulates major stationary sources of air pollution in accordance with Florida's PSD preconstruction review program as defined in Rule 62-212.400, F.A.C. Under preconstruction review, the Department first must determine if a project is subject to the PSD requirements ("PSD applicability review") and, if so, must conduct a PSD preconstruction review. A PSD applicability review is required for projects at new and existing major stationary sources. In addition, proposed projects at existing minor sources are subject to a PSD applicability review to determine whether potential emissions *from the proposed project itself* will exceed the PSD major stationary source thresholds. A facility is considered a major stationary source with respect to PSD if it emits or has the potential to emit:

- 5 tons per year or more of lead;

- 250 tons per year or more of any regulated air pollutant; or
- 100 tons per year or more of any regulated air pollutant and the facility belongs to one of the following 28 PSD-major facility categories: fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input, coal cleaning plants (with thermal dryers), Kraft pulp mills, portland cement plants, primary zinc smelters, iron and steel mill plants, primary aluminum ore reduction plants, primary copper smelters, municipal incinerators capable of charging more than 250 tons of refuse per day, hydrofluoric, sulfuric, and nitric acid plants, petroleum refineries, lime plants, phosphate rock processing plants, coke oven batteries, sulfur recovery plants, carbon black plants (furnace process), primary lead smelters, fuel conversion plants, sintering plants, secondary metal production plants, chemical process plants, fossil fuel boilers (or combinations thereof) totaling more than 250 million British thermal units per hour heat input, petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels, taconite ore processing plants, glass fiber processing plants and charcoal production plants.

Once it is determined that a project is subject to PSD preconstruction review, the project emissions are compared to the "significant emission rates" defined in Rule 62-210.200, F.A.C. for the following pollutants: carbon monoxide (CO); nitrogen oxides (NO_X); sulfur dioxide (SO_2); particulate matter (PM); particulate matter with a mean particle diameter of 10 microns or less (PM_{10}); volatile organic compounds (VOC); lead (Pb); fluorides (F); sulfuric acid mist (SAM); hydrogen sulfide (H_2S); total reduced sulfur (TRS), including H_2S; reduced sulfur compounds, including H_2S; municipal waste combustor organics measured as total tetra- through octa-chlorinated dibenzo-p-dioxins and dibenzofurans; municipal waste combustor metals measured as particulate matter; municipal waste combustor acid gases measured as SO_2 and hydrogen chloride (HCl); municipal solid waste landfills emissions measured as non-methane organic compounds (NMOC); and mercury (Hg). In addition, significant emissions rate also means any emissions rate or any net emissions increase associated with a major stationary source or major modification which would construct within 10 kilometers of a Class I area and have an impact on such area equal to or greater than 1 $\mu g/m^3$, 24-hour average.

If the potential emission exceeds the defined significant emissions rate of a PSD pollutant, the project is considered "significant" for the pollutant and the applicant must employ the Best Available Control Technology (BACT) to minimize the emissions and evaluate the air quality impacts. Although a facility or project may be *major* with respect to PSD for only one regulated pollutant, it may be required to install BACT controls for several "significant" regulated pollutants.

PSD Applicability for Project

The proposed project, construction of a supplemental material handling conveyor, is a minor modification to the Big Bend Station. This project will not increase particulate matter ($PM/PM_{10}/PM_{2.5}$) above the significant emissions rate (SER) threshold; therefore, this project is not subject to PSD construction review. Consequently, no air modeling was submitted and a BACT determination was not required.

3. DEPARTMENT PROJECT REVIEW

The fugitive particulate emissions from the proposed supplemental material handling conveyor system are less than 5 tons per year. The proposed conveyors will be enclosed and covered to minimize fugitive emissions during conveyance. TECO indicated that the system will not contain a dust suppression system. However, best management practices such as water spray (manually) are proposed to be used to suppress unconfined fugitive emissions during bulldozer operations and grizzly hopper loading.

The additional supplemental material conveyance system (EU 048) could potentially increase emissions as follows:

Activity/Transfer Operation	E.U	Pollutant Emission Rate (TPY)		
		PM	PM_{10}	$PM_{2.5}$
Dozer Stock Pile Operations (fugitive)	FH-100	0.41	0.094	0.0094
Dozer Operations to Grizzly Hopper (fugitive)	FH-101	2.2	1.1	0.16
Grizzly Hopper to Enclosed Bypass Conveyor	FH-102	0.22	0.11	0.016
Enclosed Bypass Conveyor to "K" Feeder to L1 or L2	FH-103	0.22	0.11	0.016
	TOTAL	3.1	1.4	0.20
Significant Emissions Rate (SER)		**25**	**15**	**10**

The AP-42 procedures in Section 13.2.2.2 were used to calculate the $PM/PM_{10}/PM_{2.5}$ emissions from the heavy equipment (i.e. bulldozer Cat D9 or similar equipment) operations. Procedures in Section 13.2.4.3 were used to calculate emissions from material handling operations using coal as the solid material. The calculations were based on operating at the maximum coal feed rates and the new system operating at 8,760 hours per year. Other supplemental materials like coal additives may be conveyed, but this new system is expected to convey mainly coal for the 4 boilers at BBS. The State's general 20% visible emission limit will apply to the fugitive emissions generated by the Dozer Stock Pile Operations and the Dozer Operations to Grizzly Hopper (FH-100 and FH-101). The J3 Conveyor System will be generically subject to Hillsborough County's 5% visible emission limitation; however, emission testing is not required because the conveyors and static drop points are enclosed. Therefore, there are no defined emission points from which to perform a test. The applicant is required to implement reasonable precautions and best management practices to prevent unconfined fugitive emissions when needed to minimize dust and to meet these limits.

This new emissions unit and associated emissions points are subject to applicable requirements of 40 CFR 60, Subpart Y - Standards of Performance for Coal Preparation Plants, adopted by reference in Rule 62-204.800(8)(b)22., F.A.C.; and, to Rule 62-296.320(4)(c), F.A.C., Unconfined Emissions of Particulate Matter. This emission unit and associated emissions points are also subject to the Hillsborough County Environmental Protection Commission (HCEPC) Rules, Chapter 1-3, Stationary Air Pollution Sources and Ambient Air Quality Standards; specifically Part 5, Rule 1-3.52 Visible Emissions.

In addition, this new emission unit and associated emissions points are subject to applicable requirement of Rule 62-296.700 Reasonable Available Control Technology (RACT) and RACT Rule 62-296.711 Materials Handling, Sizing, Screening, Crushing and Grinding Operations because Rule 1-3.51, Particulate Matter Emissions of the HCEPC requires new emissions units to be subject to the Department RACT rule.

4. PRELIMINARY DETERMINATION

The Department makes a preliminary determination that the proposed project will comply with all applicable state and federal air pollution regulations as conditioned by the draft permit. This determination is based on a technical review of the complete application, reasonable assurances provided by the applicant, and the conditions specified in the draft permit. No air quality modeling analysis is required because the project does not result in a significant increase in emissions. Teresa Heron and Martin Costello are the project engineers responsible for reviewing the application and drafting the permit documents. Jonathan Holtom, P.E., is the Air Permitting Supervisor responsible for reviewing, editing and approving these documents. Additional details of this analysis may be obtained by contacting the project engineer at the Department's Division of Air Resource Management, Office of Permitting and Compliance at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400.