Florida Department of
Environmental Protection

Memorandum

TO: Brian Beals, EPA Atlanta

FROM: Jerry Kissel, Air Program SWD

DATE: October 8, 1997

Tampa Electric Co's (TECO) Gannon plant has separate permits for its' coal yard and its' boilers. In order to reduce NO_x emissions, they are changing to a lower btu/lb western coal and have applied for a modification to the coal yard permit to increase the annual throughput. The coal yard modification is not PSD-significant.

The increased coal throughput will cause a PSD-significant increase in PM at the boilers. Should this factor be brought into the evaluation of the coal yard application? De-bottlenecking has been mentioned, and TECO has stated that de-bottlenecking refers to an increase in production from their boilers (and there will be no increase in production), not to an increase in emissions from their boilers.

I talked to Greg Worley on this today, who said that it is the total facility emissions which must be evaluated, so I believe we have our answer, but I'd appreciate a written reply.

Thanks

cc: R. Kirby, EPC
A. Linero, DEP
J. Taylor, TECO

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TAMPA ELECTRIC

D.E.R.

SEP 24 1997

SOUTHWEST DISTRICT
TAMPA

September 24, 1997

Mr. Gerald Kissell, P.E.
Air Permitting Supervisor
Florida Department of Environmental Protection (FDEP)
Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Via Hand Delivery

Re: Tampa Electric Company (TEC)
Gannon Station
Fuel Yard Modification Construction Permit Application
Response to Agency Comments
Application Reference No. 0570040-006-AC

Dear Mr. Kissell:

Enclosed are three (3) signed and sealed copies of TEC's responses to agency comments regarding the above referenced construction permit application. One (1) "binder ready" copy, suitable for incorporation with the previously submitted "working" copy, has been provided to assist with your review. Also, as per your request, one (1) signed and sealed copy has been sent to Mr. Rick Kirby, P.E. at the Environmental Protection Commission of Hillsborough County (EPCHC).

This submission is in response to several requests for clarification that resulted from our meeting on September 10, 1997, and subsequent agency correspondence that summarized that meeting, dated September 18, 1997, TEC. TEC has responded to each of the agency comments, including the "bottle neck" issue, in detail. However, the "bottle neck" issue was not identified in the original letter of incompleteness and should not be considered in determining the completeness of this permit application.

RECEIVED

OCT 30 1997

BUREAU OF
AIR REGULATION

TAMPA ELECTRIC COMPANY

P.O. BOX 111

TAMPA, FL 33601-0111

HILLSBOROUGH COUNTY 223-0800

OUTSIDE OF HILLSBOROUGH COUNTY 1-888-223-0800

HTTP://WWW.TECOENERGY.COM

AN EQUAL OPPORTUNITY COMPANY

TEC would be pleased to meet with you or your staff at your convenience to discuss these responses in detail. If you have any additional questions or comments, feel free to contact me at (813) 641-5087. Thank you for your assistance on this project.

Sincerely,

Laura A. Rector
Engineer - Environmental Planning

EP\gm\LAR093

Enclosures

c/enc: Mr. Richard Kirby - EPCHC

Department of
Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

September 18, 1997

Mr. Patrick A. Ho
Tampa Electric Company
Post Office Box 111
Tampa, FL 33601-0111 /

Dear Mr. Ho:

Re: Gannon Fuel Yard Modification, Application Reference 0570040-006-AC

On August 20, 1997, the Department received your response to the incompletness letter of July 25, 1997. During the meeting on September 10, 1997 these responses were discussed. This meeting brought up more questions. The application is still incomplete and the Department is requesting the following information pursuant to Rule 62-4.050(1), F.A.C.:

1. Please respond to the items specified in the attached letter from the EPCHC.

Note - Rule 62-4.050 requires application of this type to be certified by a professional engineer registered in the State of Florida. This requirement also applies to responses for additional information of an engineering nature. Therefore, your response to the above requested information should be certified as above.

"Notice: Pursuant to the provisions of Section 120.660, Florida Statutes, and Rule 62-4.070(5), Florida Administrative Code, if the Department does not receive a response to this request for information within 90 days of the date of this letter, the Department will issue a final order denying your application. You need to respond within 30 days after you receive this letter, responding to as much of the information as possible and indicating when a response to any unanswered questions will be submitted. If the response will require longer than 90 days to develop, you should develop a specific time table for the submission of the requested information for Department review and consideration. Failure to comply with a time table accepted by the Department will be grounds for the Department to issue a Final Order for Denial for lack of timely response. A denial for lack of information or response will be unbiased as to the merits of the application. The applicant can reapply as soon as the requested information is available."

A copy of your response should also be sent to Mr. Rick Kirby of the EPCHC, If you have any questions, please call me at (813)744-6100 extension 105.

Sincerely,

George W. Richardson
Air Permitting Engineer
Southwest District

cc: Rick Kirby, EPCHC

Enclosure

ENVIRONMENTAL PROTECTION COMMISSION
HILLSBOROUGH COUNTY

ADMINISTRATIVE OFFICES, LEGAL & WATER MANAGEMENT DIVISION
1900 - 9TH AVENUE
TAMPA, FLORIDA 33605
TELEPHONE (813) 272-5960
FAX (813) 272-5157

AIR MANAGEMENT DIVISION
TELEPHONE (813) 272-5530

WASTE MANAGEMENT DIVISION
TELEPHONE (813) 272-5788

WETLANDS MANAGEMENT DIVISION
TELEPHONE (813) 272-7104

M E M O R A N D U M

DATE: September 16, 1997

TO: Jerry Kissel, FDEP

FROM: Jeff Ouellette JO THRU: Rick Kirby RK

SUBJECT: **Tampa Electric Company - Gannon Coal Yard (0570040-006-AC)**

The following comments are being provided as discussed during the meeting with Tampa Electric Company (TEC) on September 10, 1997 in regards to the proposed increase in coal yard throughput from 2.85 million tons per year to 4.0 million tons per year.

1. The increase in allowable coal throughput of the fuel yard seems to remove a "bottle neck" in fuel usage in the furnaces. TEC should provide reasonable assurance that the increase in coal yard throughput will not cause a significant increase in pollutants emitted from any of the boiler units 1-6. The attached letters from EPA as well as a portion of the New Source Review Workshop Manual, explain the reasoning behind the concern the EPC has with this issue.

2. The EPC does not have confidence that the control efficiencies used to calculate particulate matter emissions are accurate. In the previous permit, control efficiencies were considerably lower and TEC has not provided any reasonable explanation for the use of 90% for all activities at the facility. TECO should compare emissions estimates done to estimates using AP-42, Chapter 11.9 - Western Surface Coal Mining. Estimates should be done for bulldozing active piles and wind erosion and maintenance from active piles.

3. The moisture content used in the calculations at the facility are for total material moisture. Based on input from USEPA, it is appropriate to use the surface moisture content. The facility should recalculate coal yard figures based on surface moisture content of 2%.

4. The EPC does not consider the drop equation appropriate for crushing activities at the facility. In order to provide a more accurate assessment of emissions from the crushers, TEC should propose a new method for calculating these emissions.

5. Per agreement between EPC, DEP, and TECO during our meeting September 10, 1997, the issue of NSPS applicability to the replacement coal crushers is not part of this application.

bm

F.J. GANNON STATION

FUEL YARD MODIFICATION
CONSTRUCTION PERMIT APPLICATION

TECO
TAMPA ELECTRIC

JUNE 1997

ADDENDUM
SEPTEMBER 1997

Tampa Electric Company - F.J. Gannon Station
Fuel Yard Construction Permit Application Responses

EPCHC Comment No. 1

The increase in allowable coal throughput of the fuel yard seems to remove a "bottle neck" on fuel usage in the furnaces. TEC should provide reasonable assurance that the increase in coal yard throughput will not cause a significant increase in pollutants emitted from any of the boiler units 1-6. The attached letters from EPA, as well as a portion of the New Source Review Workshop Manual, explain the reasoning behind the concern EPCHC has with this issue.

TEC Response No. 1

The increase in allowable fuel yard throughput does not remove a bottleneck in steam generator usage. U.S. Environmental Protection Agency (EPA) guidance in the New Source Review Workshop Manual and in the Environmental Protection Commission of Hillsborough County (EPCHC)-provided letters indicates that a bottleneck is removed if a modification at one point in a process allows for increased production at a second point in the process, regardless of whether a modification occurs at that second point.

In the existing F.J. Gannon Station air operation permits for each solid fuel-fired steam generator, the Operation and Emission Limitations permit conditions identify a unit-specific maximum fuel heat input rate. Each steam generating unit is capable of and has operated at its maximum potential production output rate (in million British thermal units per hour [MMBtu/hr]). The Powder River Basin (PRB) coal that is now being burned in a blend with other coals at F.J. Gannon Station has a lower heat content than coals that have been burned previously. Because the PRB coal has a lower heat content, more coal must be burned to generate the same quantity of energy. However, no aspect of the steam generating units,

including the maximum potential and actual output (MMBtu/hr), changes as a result of PRB coal combustion. In other words, the proposed fuel yard modification will not result in an increase in the production rate or output of these units. Because an increase in production from the steam generating units does not occur, the fuel yard modification does not represent the removal of a bottleneck and Prevention of Significant Deterioration (PSD) review of the steam generating units emissions is not required or appropriate.

EPCHC Comment No. 2

The EPCHC does not have confidence that the control efficiencies used to calculate particulate matter emissions are accurate. In the previous permit, control efficiencies were considerably lower and TEC has not provided any reasonable explanation for the use of 90 % for all activities at the facility. TECO should compare emission estimates done using AP-42, Chapter 11.9 - Western Surface Coal Mining. Estimates should be done for bulldozing active piles and wind erosion and maintenance from active piles.

TEC Response No. 2

Particulate matter (PM) and respirable particulate matter (PM_{10}) emissions from fuel yard emission sources are currently controlled using a combination of enclosures, dust suppressant, and wind shields. Dust suppressant is currently applied to the fuel at three fuel yard locations:

- *The transfer from Conveyors C and L to Conveyors D1 and D2.*
- *The transfers from Conveyors D1 to M1 and from Conveyor D2 to M2.*
- *The transfers from Conveyor M1 to Conveyor E1 and from Conveyor M2 to Conveyor E2.*

- *The transfers from Conveyors F1 to G1 and Conveyors F2 to G2.*

- *The crushers.*

As a part of this fuel yard modification project, a sixth coating of dust suppressant will be applied to the fuel. Currently, fuel being unloaded from barges and railcars is not treated with dust suppressant until the material is transferred from Conveyors C and L to Conveyors D1 and D2. After modification, the fuel will arrive at F.J. Gannon Station with a preapplied coating of dust suppressant or the dust suppressant will be applied as the material is unloaded. This additional coating will provide significantly more PM emission control as the fuel is unloaded and initially handled. This additional coating will also provide additional assurance of PM emission compliance over the entire fuel yard.

Given this increased PM emission control and the evolution of emission factors since the fuel yard was permitted in 1983, a review of the previously assigned control efficiencies was undertaken for each fuel yard emission source. If appropriate, the assigned control efficiency was adjusted to reflect the increased emission control and/or to add conservatism to the fuel yard PM and PM_{10} emission estimates. The results of this review are summarized in Table 1. Overall, the emission control efficiency was increased for 15 emission sources, decreased for 19 emission sources, and not changed for 6 emission sources. In general, the increases in control efficiency reflect the additional dust suppressant application and the decreases in control efficiency were accepted to add conservatism to the emission estimates.

Tractors operating to maintain the fuel storage piles cause PM and PM_{10} emissions. These emissions are included in the F.J. Gannon Station emissions inventory as source FH-044. The appropriate emission calculation spreadsheets are included in Appendix B of the construction permit application. The emission factor used to estimate these emissions was obtained from Section 13.2.2, Unpaved Roads, of the Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources (AP-42). The Fifth Edition of AP-42, including Supplements A and B, was used. EPCHC noted that Section 11.9. of AP-42, Western Surface Coal Mining,

includes an algorithm for coal bulldozing operations. EPCHC thought that using this algorithm might be more appropriate than using the unpaved road emission factor. Both emission factors have been reviewed. The unpaved road emission factor was selected because:

- *In Section 13.2.4, Aggregate Handling and Storage Piles, AP-42 specifically recommends using the unpaved roads emission factor from Section 13.2.2 to calculate emissions from equipment on coal storage piles.*

- *The unpaved roads emission factor has a higher emission factor quality rating than the western surface coal mining emission factor. The unpaved roads emission factor has an unadjusted A rating, which must be adjusted one step down to B because annual conditions are being evaluated. The western surface coal mining emission factor has an unadjusted B rating, which must be adjusted at least one step down to C because an eastern power plant fuel yard is being evaluated. AP-42 actually recommends a C rating if the western surface coal mining emission factor is applied to an eastern coal mine. AP-42 is silent on applying the factor to any other industrial operation, so the best possible rating for the western coal mining emission factor in this situation is C.*

- *The Florida Department of Environmental Protection (FDEP) and EPCHC have agreed with using the unpaved roads emission factor to estimate fuel storage pile emissions at other facilities, including the recently permitted Big Bend Station fuel yard transloading project.*

Given this background, Tampa Electric Company (TEC) believes using the unpaved road emission factor is more appropriate for calculating PM and PM_{10} emissions caused by maintenance operations on the F.J. Gannon Station fuel yard.

EPCHC Comment No. 3

The moisture content used in the calculations at the facility are for total material moisture. Based on input from USEPA, it is appropriate to use the surface moisture content. The facility should recalculate coal yard figures based on surface moisture content of 2 %.

TEC Response No. 3

TEC believes that total material moisture content is the appropriate parameter to use for calculating PM and PM_{10} emissions with AP-42 emission factors for the following reasons.

- *The AP-42 emission factors consistently reference "material moisture content" when discussing emission factor inputs. No reference exists to material surface moisture content.*

- *Appendix C.2 of AP-42 identifies the procedures for laboratory analysis of dust loading samples. In this appendix, the recommended procedure for determining material moisture content is American Society For Testing and Materials (ASTM) methods such as D-2216. Method D-2216 is the Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock. This method defines the water content of a material as "the ratio of the mass of water contained in the pore spaces of soil or rock material, to the solid mass of particles in that material, expressed as a percentage." By incorporating this ASTM method into AP-42, EPA clearly intended material moisture content to include all of the moisture contained in a material, not just surface moisture. Consistent with this approach, TEC has used the total minimum coal moisture content to estimate PM and PM_{10} emissions using AP-42 emission factors.*

- *TEC's approach to estimating PM and PM_{10} emissions from fuel yard sources is consistent with past determinations by TEC and other utility companies. TEC is not*

aware of any Florida construction permit application that included fugitive dust emission estimates based on surface moisture content.

TEC would be pleased to review the input EPCHC received from EPA regarding this issue. Without this information, TEC cannot analyze the apparent inconsistency with EPA's AP-42. In addition, TEC does not understand the basis for EPCHC's suggestion to use a surface moisture content of 2 percent. As stated above, TEC believes total moisture is the appropriate parameter. However, even if surface moisture content was to be used in the AP-42 emission factors, TEC has no data indicating that 2 percent is an appropriate surface moisture content value for the fuels currently in use at F.J. Gannon Station.

EPCHC Comment No. 4

The EPCHC does not consider the drop equation appropriate for crushing activities at the facility. In order to provide a more accurate assessment of emissions from the crushers, TEC should propose a new method for calculating these emissions.

TEC Response No. 4

The F.J. Gannon Station crushers are sealed units with no opening to the atmosphere other than the points of transfer into and out of the crushers. The emissions that are released from these transfer points are included in the fuel yard emissions inventory as emission sources FH-031 through FH-035. No other emissions are released from the crushers. Therefore, consistent with the existing fuel yard permit, no other crusher-associated emission sources are included in the fuel yard emissions inventory

EPCHC Comment No. 5

Per agreement between EPCHC, DEP, and TECO during our meeting September 10, 1997, the issue of NSPS applicability to the replacement coal crushers is not part of this application.

TEC Response No. 5

The issue of New Source Performance Standards (NSPS) applicability to the replacement coal crushers is not part of the F.J. Gannon Station fuel yard modification construction permit application.

TABLE 1. F.J. Gannon Station - Fuel Yard PM Emission Control Methods and Efficiencies

Emission Source Description	Emission Point ID	Historic Emission Control Method	Historic Emission Control Efficiency (pct)	Proposed Emission Control Method	Proposed Emission Control Efficiency (pct)	Control Efficiency Change[1]
Barge to West Clamshell	FH-002	None	0	Dust Suppressant	95	I
Barge to Continuous Unloader	FH-003	None	0	Dust Suppressant	95	I
West Clamshell to West Hopper	FH-005	Wind Shield	25	Dust Suppressant	95	I
Continuous Unloader to Conveyor A	FH-006	Wind Shield	25	Dust Suppressant	95	I
Conveyor A to Continuous Feeder	FH-007	Enclosure	50	Dust Suppressant and Enclosure	95	I
West Hopper to Conveyor B	FH-009	Enclosure	50	Dust Suppressant and Enclosure	95	I
Conveyor B to Conveyor C	FH-011	Enclosure	50	Dust Suppressant and Enclosure	90	I
Conveyor C to Conveyor D1/D2	FH-012	Dust Suppressant and Enclosure	95	Dust Suppressant and Enclosure	90	D
Rail Car to Hopper	FH-013	Enclosure	40	Dust Suppressant and Enclosure	95	I
Hopper to Conveyor L	FH-014	Enclosure	50	Dust Suppressant and Enclosure	95	I
Conveyor L to Conveyor D1/D2	FH-015	Dust Suppressant and Enclosure	95	Dust Suppressant and Enclosure	95	NC
Conveyor D1 to Conveyor M1	FH-016	Dust Suppressant and Enclosure	95	Dust Suppressant and Enclosure	90	D
Conveyor D2 to Conveyor M2	FH-017	Dust Suppressant and Enclosure	95	Dust Suppressant and Enclosure	90	D
Conveyor M1 to Conveyor E1	FH-018	Dust Suppressant and Enclosure	95	Dust Suppressant and Enclosure	90	D
Conveyor M2 to Conveyor E2	FH-019	Dust Suppressant and Enclosure	95	Dust Suppressant and Enclosure	90	D
Conveyor E1 to Storage Pile	FH-020	Dust Suppressant	0	Dust Suppressant	70	I
Conveyor E2 to Storage Pile	FH-021	Dust Suppressant	0	Dust Suppressant	70	I
Fuel Storage - North Stockpile	FH-022	Dust Suppressant	50 live/70 dead	Dust Suppressant	50	D
Fuel Storage - South Stockpile	FH-023	Dust Suppressant	50 live/70 dead	Dust Suppressant	50	D
Underground Reclaim System to Conveyor F1	FH-024	Dust Suppressant and Enclosure	85	Dust Suppressant and Enclosure	85	NC
Underground Reclaim System to Conveyor F4	FH-025	Dust Suppressant and Enclosure	85	Dust Suppressant and Enclosure	85	NC
Underground Reclaim System to Conveyor F3	FH-026	Dust Suppressant and Enclosure	85	Dust Suppressant and Enclosure	85	NC
Underground Reclaim System to Conveyor F2	FH-027	Dust Suppressant and Enclosure	85	Dust Suppressant and Enclosure	85	NC
Conveyor F1 to Conveyor G1/G2	FH-028	Dust Suppressant and Enclosure	95	Dust Suppressant and Enclosure	90	D
Conveyor F4 to Conveyor G1/G2	FH-029	Dust Suppressant and Enclosure	95	Dust Suppressant and Enclosure	90	D
Conveyor F3 to Conveyor G1/G2	FH-030	Dust Suppressant and Enclosure	95	Dust Suppressant and Enclosure	90	D
Conveyor F2 to Conveyor G1/G2	FH-031	Dust Suppressant and Enclosure	95	Dust Suppressant and Enclosure	90	D
Conveyor G1 to Hammermill Crusher 1	FH-032	Dust Suppressant and Enclosure	70	Dust Suppressant and Enclosure	90	I
Conveyor G2 to Hammermill Crusher 2	FH-033	Dust Suppressant and Enclosure	70	Dust Suppressant and Enclosure	90	I
Hammermill Crusher 1 to Conveyor H1	FH-034	Dust Suppressant and Enclosure	70	Dust Suppressant and Enclosure	90	I
Hammermill Crusher 2 to Conveyor H2	FH-035	Dust Suppressant and Enclosure	70	Dust Suppressant and Enclosure	90	I
Conveyors H1/H2 to Conveyors J1/J2 Conveyors J1/J2 to Bunkers	FH-036 - FH-041	Rotoclones	95	Rotoclones	75	D
Conveyor D1 to Conveyor G1/G2 (Bypass)	FH-042	Dust Suppressant and Enclosure	95	Dust Suppressant and Enclosure	90	D
Conveyor D2 to Conveyor G1/G2 (Bypass)	FH-043	Dust Suppressant and Enclosure	95	Dust Suppressant and Enclosure	90	D
Storage Pile Maintenance	FH-044	Dust Suppressant	50	Dust Suppressant	50	NC

[1]Change from historic emission control efficiency to proposed emission control efficiency.

I = Increased efficiency

D = Decreased efficiency

NC = No change in efficiency

For the fuel yard, the emission control efficiency was increased for 15 emission sources, decreased for 19 emission sources, and not changed for 6 emission sources.

Signature Pages

Owner/Authorized Representative or Responsible Official

1. Name and Title of Owner/Authorized Representative or Responsible Official:

   Patrick Ho, Manager, Environmental Planning

2. Owner/Authorized Representative or Responsible Official Mailing Address:

   Organization/Firm: Tampa Electric Company
   Street Address: P.O. Box 111
   City: Tampa State: Florida Zip Code: 33601-0111

3. Owner/Authorized Representative or Responsible Official Telephone Numbers:
   Telephone: (813) 641-5044 Fax: (813) 641-5081

4. Owner/Authorized Representative or Responsible Official Statement:

   I, the undersigned, am the owner or authorized representative of the non-Title V source addressed in this Application for Air Permit or the responsible official, as defined in Rule 62-210.200, F.A.C., of the Title V source addressed in this application, whichever is applicable. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof. I understand that a permit, if granted by the Department, cannot be transferred without authorization from the Department, and I will promptly notify the Department upon sale or legal transfer of any permitted emissions unit.*

Patrick A. Ho
Signature

9/24/97
Date

* Attach letter of authorization if not currently on file.

Professional Engineer Certification

1. Professional Engineer Name: Thomas W. Davis Registration Number: 36777
2. Professional Engineer Mailing Address: Organization/Firm: Environmental Consulting & Technology, Inc. Street Address: 3701 Northwest 98th Street City: Gainesville State: Florida Zip Code: 32606
3. Professional Engineer Telephone Numbers: Telephone: (352) 332-0444 Fax: (352) 332-6722

4. Professional Engineer Statement:

I, the undersigned, hereby certify, except as particularly noted herein, that:*

(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this Application for Air Permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and

(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.

If the purpose of this application is to obtain a Title V source air operation permit (check here [ ] if so), I further certify that each emissions unit described in this Application for Air Permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance schedule is submitted with this application.

If the purpose of this application is to obtain an air construction permit for one or more proposed new or modified emissions units (check here [✓] if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.

If the purpose of this application is to obtain an initial air operation permit or operation permit revision for one or more newly constructed or modified emissions units (check here [ ] if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.

Signature

9/22/97
Date

(seal)

* Attach any exception to certification statement.

DOCUMENT II.E.6.2

PM_{10} EMISSION SUMMARY AND DEMONSTRATION OF NO PREVENTION OF SIGNIFICANT DETERIORATION APPLICABILITY

DOC.II.E.6.2 - SUMMARY OF PM10 EMISSION CHANGES

Emission Point Description	PM10 Emission			
	Emission Point ID	Actual (tpy)	Future Actual (tpy)	Change (tpy)
Barge to clamshell	FH-002	0.09	0.02	-0.07
Barge to continuous unloader	FH-003	0.09	0.02	-0.07
Clamshell to barge unloading hopper	FH-005	0.03	0.02	-0.01
Continuous unloader to conveyor A	FH-006	0.03	0.02	-0.01
Conveyor A to continuous feeder	FH-007	0.03	0.02	-0.01
Barge unloading hopper to conveyor B	FH-009	0.03	0.02	-0.01
Conveyor B to conveyor C	FH-011	0.06	0.09	0.03
Conveyor C to conveyors D1, D2	FH-012	0.04	0.09	0.05
Rail car to rail unloading hopper	FH-013	0.03	0.00	-0.03
Rail unloading hopper to conveyor L	FH-014	0.03	0.00	-0.03
Conveyor L to conveyors D1, D2	FH-015	0.02	0.00	-0.02
Conveyor D1 to conveyor M1	FH-016	0.03	0.05	0.02
Conveyor D2 to conveyor M2	FH-017	0.03	0.05	0.02
Conveyor M1 to conveyor E1	FH-018	0.03	0.05	0.02
Conveyor M2 to conveyor E2	FH-019	0.03	0.05	0.02
Conveyor E1 to fuel storage pile	FH-020	0.08	0.13	0.05
Conveyor E2 to fuel storage pile	FH-021	0.08	0.13	0.05
Fuel storage pile	FH-022/023	0.08	0.08	0.00
Underground reclaim to conveyor F1	FH-024	0.03	0.04	0.01
Underground reclaim to conveyor F4	FH-025	0.03	0.04	0.01
Underground reclaim to conveyor F3	FH-026	0.00	0.00	0.00
Underground reclaim to conveyor F2	FH-027	0.03	0.04	0.01
Conveyor F1 to conveyors G1, G2	FH-028	0.02	0.03	0.01
Conveyor F4 to conveyors G1, G2	FH-029	0.02	0.03	0.01
Conveyor F3 to conveyors G1, G2	FH-030	0.00	0.00	0.00
Conveyor F2 to conveyors G1, G2	FH-031	0.02	0.03	0.01
Conveyor G1 to crushers	FH-032	0.03	0.05	0.02
Conveyor G2 to crushers	FH-033	0.03	0.05	0.02
Crushers to conveyor H1	FH-034	0.03	0.05	0.02
Crushers to conveyor H2	FH-035	0.03	0.05	0.02
Conveyor H1 to bunkering	FH-036/041	2.97	2.97	0.00
Conveyor H2 to bunkering	FH-036/041	2.97	2.97	0.00
Conveyor D1 to conveyor G1, G2	FH-042	0.00	0.00	0.00
Conveyor D2 to conveyor G1, G2	FH-043	0.00	0.00	0.00
Dozer operations of storage piles	FH-044	10.86	10.86	0.00
Truck unloading - auxiliary	AH-001	0.00	0.01	0.01
Storage pile to auxiliary hopper	AH-002	0.00	0.01	0.01
Auxiliary hopper to conveyor T	AH-003	0.00	0.01	0.01
Conveyor T to conveyor U	AH-004	0.00	0.01	0.01
Conveyor U to conveyors G1, G2	AH-005	0.00	0.01	0.01
PM10 Emission Summary		17.91	18.10	0.19

Notes:

1. Actual emissions based on average of 1995 and 1996 actual fuel usage equally divided among fuel transfer points.
2. Future actual emissions based on 4,000,000 tpy of fuel conservatively assumed to be off-loaded from barge and then equally divided among fuel transfer points.
3. Future actual emissions based on 362,025 tpy of alternate fuel usage.
4. See Appendix B for emission calculation detail.

DOCUMENT II.E.6.2.a

PM EMISSION SUMMARY AND DEMONSTRATION OF NO PREVENTION OF SIGNIFICANT DETERIORATION APPLICABILITY

DOC.II.E.6.2.a - SUMMARY OF PM EMISSION CHANGES

Emission Point Description	Emission Point ID	PM Emission		
		Actual (tpy)	Future Actual (tpy)	Change (tpy)
Barge to clamshell	FH-002	0.16	0.06	-0.1
Barge to continuous unloader	FH-003	0.16	0.06	-0.1
Clamshell to barge unloading hopper	FH-005	0.16	0.06	-0.1
Continuous unloader to conveyor A	FH-006	0.08	0.06	-0.02
Conveyor A to continuous feeder	FH-007	0.08	0.06	-0.02
Barge unloading hopper to conveyor B	FH-009	0.08	0.06	-0.02
Conveyor B to conveyor C	FH-011	0.16	0.12	-0.04
Conveyor C to conveyors D1, D2	FH-012	0.11	0.12	0.01
Rail car to rail unloading hopper	FH-013	0.16	0.00	-0.16
Rail unloading hopper to conveyor L	FH-014	0.08	0.00	-0.08
Conveyor L to conveyors D1, D2	FH-015	0.08	0.00	-0.08
Conveyor D1 to conveyor M1	FH-016	0.08	0.13	0.05
Conveyor D2 to conveyor M2	FH-017	0.08	0.13	0.05
Conveyor M1 to conveyor E1	FH-018	0.08	0.13	0.05
Conveyor M2 to conveyor E2	FH-019	0.08	0.13	0.05
Conveyor E1 to fuel storage pile	FH-020	0.08	0.13	0.05
Conveyor E2 to fuel storage pile	FH-021	0.08	0.13	0.05
Fuel storage pile	FH-022/023	0.03	0.03	0
Underground reclaim to conveyor F1	FH-024	0.05	0.08	0.03
Underground reclaim to conveyor F4	FH-025	0.05	0.08	0.03
Underground reclaim to conveyor F3	FH-026	0.00	0.00	0.00
Underground reclaim to conveyor F2	FH-027	0.05	0.08	0.03
Conveyor F1 to conveyors G1, G2	FH-028	0.05	0.08	0.03
Conveyor F4 to conveyors G1, G2	FH-029	0.05	0.08	0.03
Conveyor F3 to conveyors G1, G2	FH-030	0.00	0.00	0.00
Conveyor F2 to conveyors G1, G2	FH-031	0.05	0.08	0.03
Conveyor G1 to crushers	FH-032	0.08	0.05	-0.03
Conveyor G2 to crushers	FH-033	0.08	0.13	0.05
Crushers to conveyor H1	FH-034	0.08	0.13	0.05
Crushers to conveyor H2	FH-035	0.08	0.13	0.05
Conveyor H1 to bunkering	FH-036/041	2.97	2.97	0.00
Conveyor H2 to bunkering	FH-036/041	2.97	2.97	0.00
Conveyor D1 to conveyor G1, G2	FH-042	0.00	0.00	0.00
Conveyor D2 to conveyor G1, G2	FH-043	0.00	0.00	0.00
Dozer operations of storage piles	FH-044	2.17	6.04	3.87
Truck unloading - auxiliary	AH-001	0.00	0.03	0.03
Storage pile to auxiliary hopper	AH-002	0.00	0.02	0.02
Auxiliary hopper to conveyor T	AH-003	0.00	0.02	0.02
Conveyor T to conveyor U	AH-004	0.00	0.02	0.02
Conveyor U to conveyors G1, G2	AH-005	0.00	0.02	0.02
PM Emission Summary		10.55	14.42	3.87

Notes:

1. Actual emissions based on average of 1995 and 1996 actual fuel usage equally divided among fuel transfer points.
2. Future actual emissions based on 4,000,000 tpy of fuel conservatively assumed to be off-loaded from barge and then equally divided among fuel transfer points.
3. Future actual emissions based on 362,025 tpy of alternate fuel usage.
4. See Appendix B for emission calculation detail.

APPENDIX B.1

FUTURE ACTUAL PM_{10} EMISSION CALCULATION SPREADSHEETS

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–002

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Barge to West Clamshell (Spillage)

Emission Control Method(s)/ID No.(s): Dust Suppressant

Emission Point ID: FH–002

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	1,150	4,000,000	6.5	95.0	0.02	0.04

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.

NOTES AND OBSERVATIONS

Short–term (24–hr average) dispersion modeling emissions rates assume west clamshell and continuous unloaders operating simultaneously, each at 1,150 tph for a total unloading rate of 2,300 tph.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	01/20/97
Evaluated by:	A. Trbovich	Date:	01/20/97
Data Entered by:	A. Trbovich	Date:	01/20/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–003

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Barge to Continuous Unloader (Spillage)

Emission Control Method(s)/ID No.(s): Barge Enclosure and Dust Suppressant

Emission Point ID: FH–003

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	1,150	4,000,000	6.5	95.0	0.02	0.04

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3–10, Fugitive Emissions From Coal–Fired Power Plants, EPRI, June 1984.

NOTES AND OBSERVATIONS

Short–term (24–hr average) dispersion modeling emissions rates assume west clamshell and continuous unloaders operating simultaneously, each at 1,150 tph for a total unloading rate of 2,300 tph.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	01/20/97
Evaluated by:	A. Trbovich	Date:	01/20/97
Data Entered by:	A. Trbovich	Date:	01/20/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–005

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – West Clamshell to West Hopper

Emission Control Method(s)/ID No.(s): Side Enclosure and Dust Suppressant

Emission Point ID: FH–005

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control [pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control [pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	1,150	4,000,000	6.5	95.0	0.02	0.04

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3–10, Fugitive Emissions From Coal–Fired Power Plants, EPRI, June 1984.

NOTES AND OBSERVATIONS

Short–term (24–hr average) dispersion modeling emissions rates assume west clamshell and continuous unloaders operating simultaneously, each at 1,150 tph for a total unloading rate of 2,300 tph.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	01/20/97
Evaluated by:	A. Trbovich	Date:	01/20/97
Data Entered by:	A. Trbovich	Date:	01/20/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–006

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | **Figure:**

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Continuous Unloader to Conveyor A

Emission Control Method(s)/ID No.(s): Enclosure and Dust Suppressant

Emission Point ID: FH–006 | **Transfer Point ID(s):**

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed	Actual Quantity Transferred		Material Moisture Content	Control Efficiency	Actual PM_{10} Emission Rates	
(mph)	(ton/hr)	(ton/yr)	(pct)	(pct)	(lb/hr)	(tpy)
8.6	1,150	4,000,000	6.5	95.0	0.02	0.04

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3–16, Fugitive Emissions From Coal–Fired Power Plants, EPRI, June 1984.

NOTES AND OBSERVATIONS

Short–term (24–hr average) dispersion modeling emissions rates assume west clamshell and continuous unloaders operating simultaneously, each at 1,150 tph for a total unloading rate of 2,300 tph.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	01/20/97
Evaluated by:	A. Trbovich	Date:	01/20/97
Data Entered by:	A. Trbovich	Date:	01/20/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–007

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor A to Continuous Feeder

Emission Control Method(s)/ID No.(s): Enclosure and Dust Suppressant

Emission Point ID: FH–007

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed	Actual Quantity Transferred		Material Moisture Content	Control Efficiency	Actual PM_{10} Emission Rates	
(mph)	(ton/hr)	(ton/yr)	(pct)	(pct)	(lb/hr)	(tpy)
8.6	1,150	4,000,000	6.5	95.0	0.02	0.04

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3–16, Fugitive Emissions From Coal–Fired Power Plants, EPRI, June 1984.

NOTES AND OBSERVATIONS

Short–term (24–hr average) dispersion modeling emissions rates assume west clamshell and continuous unloaders operating simultaneously, each at 1,150 tph for a total unloading rate of 2,300 tph.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	01/20/97
Evaluated by:	A. Trbovich	Date:	01/20/97
Data Entered by:	A. Trbovich	Date:	01/20/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–009

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | **Figure:**

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – West Hopper to Conveyor B

Emission Control Method(s)/ID No.(s): Enclosure and Dust Suppressant

Emission Point ID: FH–009 | **Transfer Point ID(s):**

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	1,150	4,000,000	6.5	95.0	0.02	0.04

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3–16, Fugitive Emissions from Coal–Fired Power Plants, EPRI, June 1984.

NOTES AND OBSERVATIONS

Short–term (24–hr average) dispersion modeling emissions rates assume west clamshell and continuous unloaders operating simultaneously, each at 1,150 tph for a total unloading rate of 2,300 tph.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	01/20/97
Evaluated by:	A. Trbovich	Date:	01/20/97
Data Entered by:	A. Trbovich	Date:	01/20/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–011

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor B to Conveyor C

Emission Control Method(s)/ID No.(s): Enclosure and Dust Suppressant

Emission Point ID: FH–011 | Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	2,300	4,000,000	6.5	90.0	0.10	0.09

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3–16, Fugitive Emissions From Coal–Fired Power Plants, EPRI, June 1984.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	01/20/97
Evaluated by:	A. Trbovich	Date:	01/20/97
Data Entered by:	A. Trbovich	Date:	01/20/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–012

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor C to Conveyor D1/D2

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant Sprays

Emission Point ID: FH–012

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	2,300	4,000,000	6.5	90.0	0.10	0.09

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling for Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	01/20/97
Evaluated by:	A. Trbovich	Date:	01/20/97
Data Entered by:	A. Trbovich	Date:	01/20/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–013

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Rail Car to Hopper

Emission Control Method(s)/ID No.(s): Enclosure and Dust Suppressant

Emission Point ID: FH–013

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	2,300	4,000,000	6.5	95.0	0.05	0.04

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3–16, Fugitive Emissions From Coal–Fired Power Plants, EPRI, June 1984.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	01/20/97
Evaluated by:	A. Trbovich	Date:	01/20/97
Data Entered by:	A. Trbovich	Date:	01/20/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–014

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | **Figure:**

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Hopper to Conveyor L

Emission Control Method(s)/ID No.(s): Enclosure and Dust Suppressant

Emission Point ID: FH–014 | **Transfer Point ID(s):**

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed	Actual Quantity Transferred		Material Moisture Content	Control Efficiency	Actual PM_{10} Emission Rates	
(mph)	(ton/hr)	(ton/yr)	(pct)	(pct)	(lb/hr)	(tpy)
8.6	2,300	4,000,000	6.5	95.0	0.05	0.04

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3–16, Fugitive Emissions From Coal–Fired Power Plants, EPRI, June 1984.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	01/20/97
Evaluated by:	A. Trbovich	Date:	01/20/97
Data Entered by:	A. Trbovich	Date:	01/20/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–015

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor L to Conveyor D1/D2

Emission Control Method(s)/ID No.(s): Enclosure and Dust Suppressant

Emission Point ID: FH–015

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	2,300	4,000,000	6.5	95.0	0.05	0.04

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3–16, Fugitive Emissions From Coal–Fired Power Plants, EPRI, June 1984.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	01/20/97
Evaluated by:	A. Trbovich	Date:	01/20/97
Data Entered by:	A. Trbovich	Date:	01/20/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–016

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor D1 to Conveyor M1

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant Sprays

Emission Point ID: FH–016

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed	Actual Quantity Transferred		Material Moisture Content	Control Efficiency	Actual PM_{10} Emission Rates	
(mph)	(ton/hr)	(ton/yr)	(pct)	(pct)	(lb/hr)	(tpy)
8.6	2,300	4,000,000	6.5	90.0	0.10	0.09

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling for Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Short–term (24–hr average) dispersion modeling emissions rates assume both stackers operating simultaneously, each at 2,300 tph for a total rate of 4,600 tph.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	01/20/97
Evaluated by:	A. Trbovich	Date:	01/20/97
Data Entered by:	A. Trbovich	Date:	01/20/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–017

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor D2 to Conveyor M2

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant Sprays

Emission Point ID: FH–017

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	2,300	4,000,000	6.5	90.0	0.10	0.09

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Short–term (24–hr average) dispersion modeling emissions rates assume both stackers operating simultaneously, each at 2,300 tph for a total rate of 4,600 tph.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	01/20/97
Evaluated by:	A. Trbovich	Date:	01/20/97
Data Entered by:	A. Trbovich	Date:	01/20/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–018

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor M1 to Conveyor E1

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant Sprays

Emission Point ID: FH–018

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	2,300	4,000,000	6.5	90.0	0.10	0.09

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Short–term (24–hr average) dispersion modeling emissions rates assume both stackers operating simultaneously, each at 2,300 tph for a total rate of 4,600 tph.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	01/20/97
Evaluated by:	A. Trbovich	Date:	01/20/97
Data Entered by:	A. Trbovich	Date:	01/20/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–019

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor M2 to Conveyor E2

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant Sprays

Emission Point ID: FH–019

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed	Actual Quantity Transferred		Material Moisture Content	Control Efficiency	Actual PM_{10} Emission Rates	
(mph)	(ton/hr)	(ton/yr)	(pct)	(pct)	(lb/hr)	(tpy)
8.6	2,300	4,000,000	6.5	90.0	0.10	0.09

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Short–term (24–hr average) dispersion modeling emissions rates assume both stackers operating simultaneously, each at 2,300 tph for a total rate of 4,600 tph.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	01/20/97
Evaluated by:	A. Trbovich	Date:	01/20/97
Data Entered by:	A. Trbovich	Date:	01/20/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–020

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor E1 to Storage Pile

Emission Control Method(s)/ID No.(s): Dust Suppressant

Emission Point ID: FH–020 | Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	2,300	4,000,000	6.5	70.0	0.29	0.26

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Short–term (24–hr average) dispersion modeling emissions rates assume both stackers operating simultaneously, each at 2,300 tph for a total rate of 4,600 tph.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/12/97
Evaluated by:	A. Trbovich	Date:	09/12/97
Data Entered by:	A. Trbovich	Date:	09/12/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–021

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | **Figure:**

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor E2 to Storage Pile

Emission Control Method(s)/ID No.(s): Dust Suppressant

Emission Point ID: FH–021 | **Transfer Point ID(s):**

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	2,300	4,000,000	6.5	70.0	0.29	0.26

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Short–term (24–hr average) dispersion modeling emissions rates assume oth stackers operating simultaneously, each at 2,300 tph for a total rate of 4,600 tph.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/12/97
Evaluated by:	A. Trbovich	Date:	09/12/97
Data Entered by:	A. Trbovich	Date:	09/12/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–022

EMISSION SOURCE TYPE

STORAGE PILE WINDBLOWN FUGITIVE DUST EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Storage – North Storage Pile

Emission Control Method(s)/ID No.(s): Application of Chemical Dust Suppressant

Emission Point ID: FH–022

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Estimates of fugitive PM_{10} were made using procedures contained in AP–42, Section 13.2.5, Industrial Wind Erosion.

Source: Section 13.2.5 – Industrial Wind Erosion, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Threshold Friction Velocity: 1.12 m/s

Control Efficiency: 50 pct

Pile Length (m): 215 Pile Width (m): 70 Pile Height (m): 21 Surface Area (m^2) 16,758

Meteorological Period	Friction Velocity (m/s)	Emission Potential (g/m^2)	Affected Pile Surface Area (pct)	Affected Area (m^2)	Actual PM_{10} Emission Rates (lb/hr)	(tpy)
14	1.30	6.38	4	670.3	0.59	0.0024
30	1.13	0.26	4	670.3	0.02	<0.0001
37	1.33	7.81	4	670.3	0.72	0.0014
65	1.48	16.52	14	2,346.1	5.34	0.0107
65	1.80	43.82	4	670.3	4.05	0.0081
77	1.30	6.38	4	670.3	0.59	0.0012
90	1.33	7.81	4	670.3	0.72	0.0014
			Maximum Per Period		9.39	N/A
			Total		N/A	0.0252

SOURCES OF INPUT DATA

Parameter	Data Source
Threshold Friction Velocity (m/s)	Uncrusted coal pile, Table 13.2.5–2., AP–42, January 1995.
Control Efficiency (pct)	Table 3.2.17–2, Workbook on Estimation and Dispersion Modeling for Fugitive Particulate Sources, UARG, September 1991.
Fuel Pile Dimensions (m)	Estimated: ECT, 1997.
Pile Surface Area (m^2)	Calculated: ECT, 1997.
Meteorological Periods	1986 NWS data, processed per AP–42, ECT, 1997.
Friction Velocity (m/s)	Equation, Section 13.2.5, AP–42, January 1995.
Potential Emission (g/m^2)	Equation, Section 13.2.5, AP–42, January 1995.
Affected Pile Surface Area (pct)	Table 13.2.5–3., Section 13.2.5, AP–42, January 1995.
Affected Area	Calculated: ECT, 1997.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/12/97
Evaluated by:	A. Trbovich	Date:	09/12/97
Data Entered by:	A. Trbovich	Date:	09/12/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–023a

EMISSION SOURCE TYPE

STORAGE PILE WINDBLOWN FUGITIVE DUST EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Storage – East Portion of South Storage Pile

Emission Control Method(s)/ID No.(s): Application of Chemical Dust Suppressant

Emission Point ID: FH–023a

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Estimates of fugitive PM_{10} were made using procedures contained in AP–42, Section 13.2.5, Industrial Wind Erosion.

Source: Section 13.2.5 – Industrial Wind Erosion, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Threshold Friction Velocity: 1.12 m/s

Control Efficiency: 50 pct

Pile Length (m): 170 Pile Width (m): 91 Pile Height (m): 21 Surface Area (m^2) 16,754

Meteorological Period	Friction Velocity (m/s)	Emission Potential (g/m^2)	Affected Pile Surface Area (pct)	Affected Area (m^2)	Actual PM_{10} Emission Rates (lb/hr)	(tpy)
14	1.30	6.38	4	670.2	0.59	0.0024
30	1.13	0.26	4	670.2	0.02	<0.0001
37	1.33	7.81	4	670.2	0.72	0.0014
65	1.48	16.52	14	2,345.5	5.34	0.0107
65	1.80	43.82	4	670.2	4.05	0.0081
77	1.30	6.38	4	670.2	0.59	0.0012
90	1.33	7.81	4	670.2	0.72	0.0014
			Maximum Per Period		9.38	N/A
			Total		N/A	0.0252

SOURCES OF INPUT DATA

Parameter	Data Source
Threshold Friction Velocity (m/s)	Uncrusted coal pile, Table 13.2.5–2., AP–42, January 1995.
Control Efficiency (pct)	Table 3.2.17–2, Workbook on Estimation and Dispersion Modeling for Fugitive Particulate Sources, UARG, September 1991.
Fuel Pile Dimensions (m)	Estimated: ECT, 1997.
Pile Surface Area (m^2)	Calculated: ECT, 1997.
Meteorological Periods	1986 NWS data, processed per AP–42, ECT, 1997.
Friction Velocity (m/s)	Equation, Section 13.2.5, AP–42, January 1995.
Potential Emission (g/m^2)	Equation, Section 13.2.5, AP–42, January 1995.
Affected Pile Surface Area (pct)	Table 13.2.5–3., Section 13.2.5, AP–42, January 1995.
Affected Area	Calculated: ECT, 1997.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/12/97
Evaluated by:	A. Trbovich	Date:	09/12/97
Data Entered by:	A. Trbovich	Date:	09/12/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–023b

EMISSION SOURCE TYPE

STORAGE PILE WINDBLOWN FUGITIVE DUST EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Storage – West Portion of South Storage Pile

Emission Control Method(s)/ID No.(s): Application of Chemical Dust Suppressant

Emission Point ID: FH–023b

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Estimates of fugitive PM_{10} were made using procedures contained in AP–42, Section 13.2.5, Industrial Wind Erosion.

Source: Section 13.2.5 – Industrial Wind Erosion, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Threshold Friction Velocity: 1.12 m/s

Control Efficiency: 50 pct

Pile Length (m): 140 Pile Width (m): 125 Pile Height (m): 21 Surface Area (m^2) 18,855

Meteorological Period	Friction Velocity (m/s)	Emission Potential (g/m^2)	Affected Pile Surface Area (pct)	Affected Area (m^2)	Actual PM_{10} Emission Rates (lb/hr)	(tpy)
14	1.30	6.38	4	754.2	0.66	0.0013
30	1.13	0.26	4	754.2	0.03	<0.0001
37	1.33	7.81	4	754.2	0.81	0.0016
65	1.48	16.52	14	2,639.6	6.01	0.0120
65	1.80	43.82	4	754.2	4.55	0.0091
77	1.30	6.38	4	754.2	0.66	0.0013
90	1.33	7.81	4	754.2	0.81	0.0016
			Maximum Per Period		10.56	N/A
			Total		N/A	0.0270

SOURCES OF INPUT DATA

Parameter	Data Source
Threshold Friction Velocity (m/s)	Uncrusted coal pile, Table 13.2.5–2., AP–42, January 1995.
Control Efficiency (pct)	Table 3.2.17–2, Workbook on Estimation and Dispersion Modeling for Fugitive Particulate Sources, UARG, September 1991.
Fuel Pile Dimensions (m)	Estimated: ECT, 1997.
Pile Surface Area (m^2)	Calculated: ECT, 1997.
Meteorological Periods	1986 NWS data, processed per AP–42, ECT, 1997.
Friction Velocity (m/s)	Equation, Section 13.2.5, AP–42, January 1995.
Potential Emission (g/m^2)	Equation, Section 13.2.5, AP–42, January 1995.
Affected Pile Surface Area (pct)	Table 13.2.5–3., Section 13.2.5, AP–42, January 1995.
Affected Area	Calculated: ECT, 1997.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/12/97
Evaluated by:	A. Trbovich	Date:	09/12/97
Data Entered by:	A. Trbovich	Date:	09/12/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–024

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | **Figure:**

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Underground Reclaim System to Conveyor F1

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant

Emission Point ID: FH–024 | **Transfer Point ID(s):**

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	400	4,000,000	6.5	85.0	0.03	0.13

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Short–term (24–hr average) dispersion modeling emissions rates assume 4 relaimers operating simultaneously,

each at 400 tph for a total rate of 1,600 tph.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/12/97
Evaluated by:	A. Trbovich	Date:	09/12/97
Data Entered by:	A. Trbovich	Date:	09/12/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–025

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Underground Reclaim System to Conveyor F4

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant

Emission Point ID: FH–025

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed	Actual Quantity Transferred		Material Moisture Content	Control Efficiency	Actual PM_{10} Emission Rates	
(mph)	(ton/hr)	(ton/yr)	(pct)	(pct)	(lb/hr)	(tpy)
8.6	400	4,000,000	6.5	85.0	0.03	0.13

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Short–term (24–hr average) dispersion modeling emissions rates assume 4 relaimers operating simultaneously, each at 400 tph for a total rate of 1,600 tph.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/12/97
Evaluated by:	A. Trbovich	Date:	09/12/97
Data Entered by:	A. Trbovich	Date:	09/12/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–026

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | **Figure:**

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Underground Reclaim System to Conveyor F3

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant

Emission Point ID: FH–026 | **Transfer Point ID(s):**

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	400	4,000,000	6.5	85.0	0.03	0.13

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Short–term (24–hr average) dispersion modeling emissions rates assume 4 relaimers operating simultaneously, each at 400 tph for a total rate of 1,600 tph.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/12/97
Evaluated by:	A. Trbovich	Date:	09/12/97
Data Entered by:	A. Trbovich	Date:	09/12/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–027

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Underground Reclaim System to Conveyor F2

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant

Emission Point ID: FH–027

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed	Actual Quantity Transferred		Material Moisture Content	Control Efficiency	Actual PM_{10} Emission Rates	
(mph)	(ton/hr)	(ton/yr)	(pct)	(pct)	(lb/hr)	(tpy)
8.6	400	4,000,000	6.5	85.0	0.03	0.13

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Short–term (24–hr average) dispersion modeling emissions rates assume 4 relaimers operating simultaneously, each at 400 tph for a total rate of 1,600 tph.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/12/97
Evaluated by:	A. Trbovich	Date:	09/12/97
Data Entered by:	A. Trbovich	Date:	09/12/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–028

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor F1 to Conveyor G1/G2

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant Sprays

Emission Point ID: FH–028 | Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed	Actual Quantity Transferred		Material Moisture Content	Control Efficiency	Actual PM_{10} Emission Rates	
(mph)	(ton/hr)	(ton/yr)	(pct)	(pct)	(lb/hr)	(tpy)
8.6	400	4,000,000	6.5	90.0	0.02	0.09

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Short–term (24–hr average) dispersion modeling emissions rates assume 4 relaimers operating simultaneously, each at 400 tph for a total rate of 1,600 tph.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	01/20/97
Evaluated by:	A. Trbovich	Date:	01/20/97
Data Entered by:	A. Trbovich	Date:	01/20/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–029

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor F4 to Conveyor G1/G2

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant Sprays

Emission Point ID: FH–029 | Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	400	4,000,000	6.5	90.0	0.02	0.09

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Short–term (24–hr average) dispersion modeling emissions rates assume 4 relaimers operating simultaneously, each at 400 tph for a total rate of 1,600 tph.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	01/20/97
Evaluated by:	A. Trbovich	Date:	01/20/97
Data Entered by:	A. Trbovich	Date:	01/20/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–030

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor F3 to Conveyor G1/G2

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant Sprays

Emission Point ID: FH–030 | Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	400	4,000,000	6.5	90.0	0.02	0.09

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Short–term (24–hr average) dispersion modeling emissions rates assume 4 relaimers operating simultaneously, each at 400 tph for a total rate of 1,600 tph.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	01/20/97
Evaluated by:	A. Trbovich	Date:	01/20/97
Data Entered by:	A. Trbovich	Date:	01/20/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–031

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor F2 to Conveyor G1/G2

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant Sprays

Emission Point ID: FH–031 | Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	400	4,000,000	6.5	90.0	0.02	0.09

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Short–term (24–hr average) dispersion modeling emission rates assume 4 relaimers operating simultaneously, each at 400 tph for a total rate of 1,600 tph.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	01/20/97
Evaluated by:	A. Trbovich	Date:	01/20/97
Data Entered by:	A. Trbovich	Date:	01/20/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–032

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor G1 to Hammermill Crusher 1

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant

Emission Point ID: FH–032

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	800	4,000,000	6.5	90.0	0.03	0.09

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	01/20/97
Evaluated by:	A. Trbovich	Date:	01/20/97
Data Entered by:	A. Trbovich	Date:	01/20/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–033

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor G2 to Hammermill Crusher 2

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant

Emission Point ID: FH–033

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	800	4,000,000	6.5	90.0	0.03	0.09

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	01/20/97
Evaluated by:	A. Trbovich	Date:	01/20/97
Data Entered by:	A. Trbovich	Date:	01/20/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–034

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Hammermill Crusher 1 to Conveyor H1

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant Sprays

Emission Point ID: FH–034

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed	Actual Quantity Transferred		Material Moisture Content	Control Efficiency	Actual PM_{10} Emission Rates	
(mph)	(ton/hr)	(ton/yr)	(pct)	(pct)	(lb/hr)	(tpy)
8.6	800	4,000,000	6.5	90.0	0.03	0.09

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	01/20/97
Evaluated by:	A. Trbovich	Date:	01/20/97
Data Entered by:	A. Trbovich	Date:	01/20/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–035

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Hammermill Crusher 2 to Conveyor H2

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant

Emission Point ID: FH–035

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	800	4,000,000	6.5	90.0	0.03	0.09

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	01/20/97
Evaluated by:	A. Trbovich	Date:	01/20/97
Data Entered by:	A. Trbovich	Date:	01/20/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric – F.J. Gannon Station

FH–036–
FH–041

EMISSION SOURCE TYPE

MATERIAL TRANSFER – CONTROLLED EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description:	Fuel Handling – Conveyors H1/H2 to Conveyors J1/J2, Conveyors J1/J2 to Bunkers	
Emission Control Method(s)/ID No.(s):	Rotoclones 1 through 6	
Emission Point ID:	FH –036 through FH–041	Transfer Point ID

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = Flow Rate (scfm) x (grain/scf) x (1 lb/7,000 grain) x (60 min/hr)

Emission (tpy) = Flow Rate (scfm) x (grain/scf) x (1 lb/7,000 grain) x (60 min/hr) x Operating Hours (hrs/yr) x (1 ton/2,000 lb)

Source: ECT, 1997.

INPUT DATA AND EMISSIONS CALCULATIONS

Operating Hours: 24 Hrs/Day 7 Days/Wk 8,760 Hrs/Yr

Transfer Points Controlled By Common Control Device	Transfer Point ID No.	Exhaust Flow Rate (scfm)	Exit Grain Loading (gr/scf)	Actual PM_{10} Emission Rates (lb/hr)	(tpy)
Unit 1 Fuel Bunker Loading		9,600	0.0023	0.19	0.99
Unit 2 Fuel Bunker Loading		9,600	0.0023	0.19	0.99
Unit 3 Fuel Bunker Loading		9,600	0.0023	0.19	0.99
Unit 4 Fuel Bunker Loading		9,600	0.0023	0.19	0.99
Unit 5 Fuel Bunker Loading		5,400	0.0041	0.19	0.99
Unit 6 Fuel Bunker Loading		9,600	0.0023	0.19	0.99

SOURCES OF INPUT DATA

Parameter	Data Source
Operating Hours	TEC, 1997.
Exhaust Flow Rate	TEC, 1997. Vendor data.
Exit Grain Loading	TEC, 1997. Based on FDEP Permit No. AO29–250140.

NOTES AND OBSERVATIONS

All Rotoclones are conservatively assumed to be operating whenever any bunkering occurs.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	01/20/97
Evaluated by:	A. Trbovich	Date:	01/20/97
Data Entered by:	A. Trbovich	Date:	01/20/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–042

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor D1 to Conveyor G1/G2 (By–Pass Storage)

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant Sprays

Emission Point ID: FH–042 | Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	2,300	4,000,000	6.5	90.0	0.10	0.09

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

If the fuel stackers and fuel stacker bypasses are operated simultaneously, the total amount of fuel handled will not exceed 4,600 tph.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	01/20/97
Evaluated by:	A. Trbovich	Date:	01/20/97
Data Entered by:	A. Trbovich	Date:	01/20/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–043

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor D2 to Conveyor G1/G2 (By–Pass Storage)

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant Sprays

Emission Point ID: FH–043 | Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	2,300	4,000,000	6.5	90.0	0.10	0.09

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

If the fuel stackers and fuel stacker bypasses are operated simultaneously, the total amount of fuel handled will not exceed 4,600 tph.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	01/20/97
Evaluated by:	A. Trbovich	Date:	01/20/97
Data Entered by:	A. Trbovich	Date:	01/20/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–044

EMISSION SOURCE TYPE

VEHICULAR TRAFFIC ON UNPAVED ROADS – FUGITIVE EMISSION SOURCES | Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description:	Fuel Handling – Storage Pile Maintenance
Emission Control Method(s)/ID No.(s):	Dust Suppressant Sprays
Emission Point ID:	FH–044

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = $0.36 \times 5.9 \times (s/12) \times (S/30) \times (W/3)^{0.7} \times (w/4)^{0.5} \times ((365-p)/365) \times$ vehicle miles per hour (VMT/hr) $\times$ (100–control[pct]/100)

Emission (ton/yr) = $0.36 \times 5.9 \times (s/12) \times (S/30) \times (W/3)^{0.7} \times (w/4)^{0.5} \times ((365-p)/365) \times$ vehicle miles per year (VMT/yr) $\times$ (1 ton/ 2,000 lb) $\times$ (100–control[pct]/100)

Source: Section 13.2.2 – Unpaved Roads, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Operating Hours: 16 Hrs/Day 7 Days/Wk 5,824 Hrs/Yr

s Silt Content (pct)	S Vehicle Speed (mph)	W Vehicle Weight (ton)	w No. of Wheels	p Rainfall Days	Vehicle Miles Travelled (VMT/hr)	Vehicle Miles Travelled (VMT/yr)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.4	2.5	48	6	107	10.0	58,240	50.0	3.73	10.86

SOURCES OF INPUT DATA

Parameter	Data Source
Operating Hours	ECT, 1997. Estimated.
Silt Content, s	Table 13.2.2–1, Section 13.2.2, AP–42, January 1995.
Vehicle Speed, S	TEC, 1997. Average value.
Vehicle Weight, W	TEC, 1997. Average value.
No. of Wheels	TEC, 1997. Average value.
Rainfall Days	Climate of the States, Third Edition, 1985. Data for Tampa, FL.
Vehicle Miles Traveled	ECT, 1997. Estimated.
Control Efficiency	Table 3.2.15–2, Workbook on Estimation of Emissions and Dispersion Modeling for Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Estimate of vehicle miles traveled based on the use of four bulldozers on the storage piles.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/12/97
Evaluated by:	A. Trbovich	Date:	09/12/97
Data Entered by:	A. Trbovich	Date:	09/12/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

AH–001

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Auxiliary Handling – Truck Unloading

Emission Control Method(s)/ID No.(s): Dust Supressant

Emission Point ID: AH–001 | Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	400	362,025	6.5	85.0	0.03	0.01

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	TEC, 1997. Average fuel moisture content.
Control Efficiency	TEC, 1997.

NOTES AND OBSERVATIONS

Annual quantity transferred based on Units 1 through 4 firing an 80/20 coal/TDF blend at maximum capacity for 8,760 hrs/yr.

5,989 MMBtu/hr x 0.2 / 14,492 Btu/lb TDF x 8,760 hrs/yr x 1 ton/2,000 lb = 362,025 tpy

Alternate fuel includes TDF and WDF. The actual annual quantity of TDF and WDF transferred may vary, but the actual total quantity of alternate fuel transferred will not exceed 362,025 tpy.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	01/08/97
Evaluated by:	A. Trbovich	Date:	01/08/97
Data Entered by:	A. Trbovich	Date:	01/08/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

AH–002

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Auxiliary Handling – Storage Pile to Hopper

Emission Control Method(s)/ID No.(s): Enclosure and Dust Suppressant

Emission Point ID: AH–002 | Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	400	362,025	6.5	90.0	0.02	0.01

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	TEC, 1997. Average fuel moisture content.
Control Efficiency	Table 3–16, Fugitive Emission from Coal–Fired Power Plants, EPRI, June 1984.

NOTES AND OBSERVATIONS

Annual quantity transferred based on Units 1 through 4 firing an 80/20 coal/TDF blend at maximum capacity for 8,760 hrs/yr.

5,989 MMBtu/hr x 0.2 / 14,492 Btu/lb TDF x 8,760 hrs/yr x 1 ton/2,000 lb = 362,025 tpy

Alternate fuel includes TDF and WDF. The actual annual quantity of TDF and WDF transferred may vary, but the actual total quantity of alternate fuel transferred will not exceed 362,025 tpy.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	01/08/97
Evaluated by:	A. Trbovich	Date:	01/08/97
Data Entered by:	A. Trbovich	Date:	01/08/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

AH–003

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Auxiliary Handling – Hopper to Conveyor T

Emission Control Method(s)/ID No.(s): Enclosure and Dust Suppressant

Emission Point ID: AH–003

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed	Actual Quantity Transferred		Material Moisture Content	Control Efficiency	Actual PM_{10} Emission Rates	
(mph)	(ton/hr)	(ton/yr)	(pct)	(pct)	(lb/hr)	(tpy)
8.6	400	362,025	6.5	90.0	0.02	0.01

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	TEC, 1997. Average fuel moisture content.
Control Efficiency	Table 3–16, Fugitive Emission from Coal–Fired Power Plants, EPRI, June 1984.

NOTES AND OBSERVATIONS

Annual quantity transferred based on Units 1 through 4 firing an 80/20 coal/TDF blend at maximum capacity for 8,760 hrs/yr.

5,989 MMBtu/hr x 0.2 / 14,492 Btu/lb TDF x 8,760 hrs/yr x 1 ton/2,000 lb = 362,025 tpy

Alternate fuel includes TDF and WDF. The actual annual quantity of TDF and WDF transferred may vary, but the actual total quantity of alternate fuel transferred will not exceed 362,025 tpy.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	01/08/97
Evaluated by:	A. Trbovich	Date:	01/08/97
Data Entered by:	A. Trbovich	Date:	01/08/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

AH–004

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Auxiliary Handling – Conveyor T to Conveyor U

Emission Control Method(s)/ID No.(s): Enclosure and Dust Suppressant

Emission Point ID: AH–004

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed	Actual Quantity Transferred		Material Moisture Content	Control Efficiency	Actual PM_{10} Emission Rates	
(mph)	(ton/hr)	(ton/yr)	(pct)	(pct)	(lb/hr)	(tpy)
8.6	400	362,025	6.5	90.0	0.02	0.01

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	TEC, 1997. Average fuel moisture content.
Control Efficiency	Table 3–16, Fugitive Emission from Coal–Fired Power Plants, EPRI, June 1984.

NOTES AND OBSERVATIONS

Annual quantity transferred based on Units 1 through 4 firing an 80/20 coal/TDF blend at maximum capacity for 8,760 hrs/yr.

5,989 MMBtu/hr x 0.2 / 14,492 Btu/lb TDF x 8,760 hrs/yr x 1 ton/2,000 lb = 362,025 tpy

Alternate fuel includes TDF and WDF. The actual annual quantity of TDF and WDF transferred may vary, but the actual total quantity of alternate fuel transferred will not exceed 362,025 tpy.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	01/08/97
Evaluated by:	A. Trbovich	Date:	01/08/97
Data Entered by:	A. Trbovich	Date:	01/08/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

AH–005

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Auxiliary Handling – Conveyor U to Conveyors H1 and H2

Emission Control Method(s)/ID No.(s): Enclosure and Dust Suppressant

Emission Point ID: AH–005 | Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	400	362,025	6.5	90.0	0.02	0.01

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	TEC, 1997. Average fuel moisture content.
Control Efficiency	Table 3–16, Fugitive Emission from Coal–Fired Power Plants, EPRI, June 1984.

NOTES AND OBSERVATIONS

Annual quantity transferred based on Units 1 through 4 firing an 80/20 coal/TDF blend at maximum capacity for 8,760 hrs/yr.

5,989 MMBtu/hr x 0.2 / 14,492 Btu/lb TDF x 8,760 hrs/yr x 1 ton/2,000 lb = 362,025 tpy

Alternate fuel includes TDF and WDF. The actual annual quantity of TDF and WDF transferred may vary, but the actual total quantity of alternate fuel transferred will not exceed 362,025 tpy.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	01/08/97
Evaluated by:	A. Trbovich	Date:	01/08/97
Data Entered by:	A. Trbovich	Date:	01/08/97
Reviewed by:		Date:	

APPENDIX B.2

ACTUAL PM_{10} EMISSION CALCULATION SPREADSHEETS

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–002

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Barge to West Clamshell (Spillage)

Emission Control Method(s)/ID No.(s): Barge Enclosure

Emission Point ID: FH–002

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	1,150	882,681	6.5	50.0	0.25	0.09

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	ECT, 1997. Set at 50 pct to conservatively minimize actual emissions for PSD evaluation. Permitted control efficiency is 0 pct.

NOTES AND OBSERVATIONS

Actual PM_{10} emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel delivery was assumed to be equally divided among the barge clamshell, barge continuous, and rail unloading systems, or 882,681 tons per system.

Actual short–term emissions based on clamshell and continuous unloading systems operating simultaneously at 1,150 tph, each.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/16/97
Evaluated by:	A. Trbovich	Date:	09/16/97
Data Entered by:	A. Trbovich	Date:	09/16/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–003

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | **Figure:**

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Barge to Continuous Unloader (Spillage)

Emission Control Method(s)/ID No.(s): Barge Enclosure

Emission Point ID: FH–003 | **Transfer Point ID(s):**

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	1,150	882,681	6.5	50.0	0.25	0.09

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	ECT, 1997. Set at 50 pct to conservatively minimize actual emissions for PSD evaluation. Permitted control efficiency is 0 pct.

NOTES AND OBSERVATIONS

Actual PM_{10} emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel delivery was assumed to be equally divided among the barge clamshell, barge continuous, and rail unloading systems, or 882,681 tons per system.

Actual short–term emissions based on clamshell and continuous unloading systems operating simultaneously at 1,150 tph, each.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/16/97
Evaluated by:	A. Trbovich	Date:	09/16/97
Data Entered by:	A. Trbovich	Date:	09/16/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–005

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | **Figure:**

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – West Clamshell to West Hopper

Emission Control Method(s)/ID No.(s): Side Enclosure

Emission Point ID: FH–005 | **Transfer Point ID(s):**

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	1,150	882,681	6.5	85.0	0.07	0.03

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	ECT, 1997. Set at 85 pct to conservatively minimize actual emissions for PSD evaluation. Permitted control efficiency is 25 pct.

NOTES AND OBSERVATIONS

Actual PM_{10} emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel delivery was assumed to be equally divided among the barge clamshell, barge continuous, and rail unloading systems, or 882,681 tons per system.

Actual short–term emissions based on clamshell and continuous unloading systems operating simultaneously at 1,150 tph, each

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/16/97
Evaluated by:	A. Trbovich	Date:	09/16/97
Data Entered by:	A. Trbovich	Date:	09/16/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–006

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Continuous Unloader to Conveyor A

Emission Control Method(s)/ID No.(s): Enclosure

Emission Point ID: FH–006

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	1,150	882,681	6.5	85.0	0.07	0.03

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	ECT, 1997. Set at 85 pct to conservatively minimize actual emissions for PSD evaluation. Permitted control efficiency is 25 pct.

NOTES AND OBSERVATIONS

Actual PM_{10} emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel delivery was assumed to be equally divided among the barge clamshell, barge continuous, and rail unloading systems, or 882,681 tons per system.

Actual short–term emissions based on clamshell and continuous unloading systems operating simultaneously at 1,150 tph, each.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/16/97
Evaluated by:	A. Trbovich	Date:	09/16/97
Data Entered by:	A. Trbovich	Date:	09/16/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–007

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor A to Continuous Feeder

Emission Control Method(s)/ID No.(s): Enclosure

Emission Point ID: FH–007

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	1,150	882,681	6.5	85.0	0.07	0.03

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	ECT, 1997. Set at 85 pct to conservatively minimize actual emissions for PSD evaluation. Permitted control efficiency is 50 pct.

NOTES AND OBSERVATIONS

Actual PM_{10} emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel delivery was assumed to be equally divided among the barge clamshell, barge continuous, and rail unloading systems, or 882,681 tons per system.

Actual short–term emissions based on clamshell and continuous unloading systems operating simultaneously at 1,150 tph, each.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/16/97
Evaluated by:	A. Trbovich	Date:	09/16/97
Data Entered by:	A. Trbovich	Date:	09/16/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–009

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | **Figure:**

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – West Hopper to Conveyor B

Emission Control Method(s)/ID No.(s): Enclosure

Emission Point ID: FH–009 | **Transfer Point ID(s):**

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	1,150	882,681	6.5	85.0	0.07	0.03

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	ECT, 1997. Set at 85 pct to conservatively minimize actual emissions for PSD evaluation. Permitted control efficiency is 50 pct.

NOTES AND OBSERVATIONS

Actual PM_{10} emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel delivery was assumed to be equally divided among the barge clamshell, barge continuous, and rail unloading systems, or 882,681 tons per system.

Actual short–term emissions based on clamshell and continuous unloading systems operating simultaneously at 1,150 tph, each.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/16/97
Evaluated by:	A. Trbovich	Date:	09/16/97
Data Entered by:	A. Trbovich	Date:	09/16/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–011

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | **Figure:**

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor B to Conveyor C

Emission Control Method(s)/ID No.(s): Enclosure

Emission Point ID: FH–011 | **Transfer Point ID(s):**

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	2,300	1,765,362	6.5	85.0	0.15	0.06

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	ECT, 1997. Set at 85 pct to conservatively minimize actual emissions for PSD evaluation. Permitted control efficiency is 50 pct.

NOTES AND OBSERVATIONS

Actual PM_{10} emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel delivery was assumed to be equally divided among the barge clamshell, barge continuous, and rail unloading systems, or 882,681 tons per system.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/16/97
Evaluated by:	A. Trbovich	Date:	09/16/97
Data Entered by:	A. Trbovich	Date:	09/16/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–012

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor C to Conveyor D1/D2

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant Sprays

Emission Point ID: FH–012

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	2,300	1,765,362	6.5	90.0	0.10	0.04

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling for Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Actual PM_{10} emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel delivery was assumed to be equally divided among the barge clamshell, barge continuous, and rail unloading systems, or 882,681 tons per system.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	05/23/97
Evaluated by:	A. Trbovich	Date:	05/23/97
Data Entered by:	A. Trbovich	Date:	05/23/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–013

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | **Figure:**

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Rail Car to Hopper

Emission Control Method(s)/ID No.(s): Partial Enclosure

Emission Point ID: FH–013 | **Transfer Point ID(s):**

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	2,300	882,681	6.5	85.0	0.15	0.03

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	ECT, 1997. Set at 85 pct to conservatively minimize actual emissions for PSD evaluation. Permitted control efficiency is 40 pct.

NOTES AND OBSERVATIONS

Actual PM_{10} emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel delivery was assumed to be equally divided among the barge clamshell, barge continuous, and rail unloading systems, or 882,681 tons per system.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/16/97
Evaluated by:	A. Trbovich	Date:	09/16/97
Data Entered by:	A. Trbovich	Date:	09/16/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–014

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | **Figure:**

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Hopper to Conveyor L

Emission Control Method(s)/ID No.(s): Enclosure

Emission Point ID: FH–014 | **Transfer Point ID(s):**

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	2,300	882,681	6.5	85.0	0.15	0.03

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	ECT, 1997. Set at 85 pct to conservatively minimize actual emissions for PSD evaluation. Permitted control efficiency is 50 pct.

NOTES AND OBSERVATIONS

Actual PM_{10} emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel delivery was assumed to be equally divided among the barge clamshell, barge continuous, and rail unloading systems, or 882,681 tons per system.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/16/97
Evaluated by:	A. Trbovich	Date:	09/16/97
Data Entered by:	A. Trbovich	Date:	09/16/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–015

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor L to Conveyor D1/D2

Emission Control Method(s)/ID No.(s): Enclosure

Emission Point ID: FH–015

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed	Actual Quantity Transferred		Material Moisture Content	Control Efficiency	Actual PM_{10} Emission Rates	
(mph)	(ton/hr)	(ton/yr)	(pct)	(pct)	(lb/hr)	(tpy)
8.6	2,300	882,681	6.5	90.0	0.10	0.02

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling for Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Actual PM_{10} emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel delivery was assumed to be equally divided among the barge clamshell, barge continuous, and rail unloading systems, or 882,681 tons per system.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	05/23/97
Evaluated by:	A. Trbovich	Date:	05/23/97
Data Entered by:	A. Trbovich	Date:	05/23/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–016

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor D1 to Conveyor M1

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant Sprays

Emission Point ID: FH–016

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	2,300	1,324,022	6.5	90.0	0.10	0.03

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling for Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Actual PM_{10} emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel delivery was assumed to be equally divided between conveyors D1 and D2, or 1,324,022 tons per conveyor.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	05/23/97
Evaluated by:	A. Trbovich	Date:	05/23/97
Data Entered by:	A. Trbovich	Date:	05/23/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–017

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor D2 to Conveyor M2

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant Sprays

Emission Point ID: FH–017

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	2,300	1,324,022	6.5	90.0	0.10	0.03

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Actual PM_{10} emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel delivery was assumed to be equally divided between conveyors D1 and D2, or 1,324,022 tons per conveyor.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	05/23/97
Evaluated by:	A. Trbovich	Date:	05/23/97
Data Entered by:	A. Trbovich	Date:	05/23/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–018

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor M1 to Conveyor E1

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant Sprays

Emission Point ID: FH–018 | Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	2,300	1,324,022	6.5	90.0	0.10	0.03

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Actual PM_{10} emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel delivery was assumed to be equally divided between conveyors M1 and M2, or 1,324,022 tons per conveyor.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	05/23/97
Evaluated by:	A. Trbovich	Date:	05/23/97
Data Entered by:	A. Trbovich	Date:	05/23/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–019

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor M2 to Conveyor E2

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant Sprays

Emission Point ID: FH–019

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	2,300	1,324,022	6.5	90.0	0.10	0.03

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Actual PM_{10} emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel delivery was assumed to be equally divided between conveyors M1 and M2, or 1,324,022 tons per conveyor.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	05/23/97
Evaluated by:	A. Trbovich	Date:	05/23/97
Data Entered by:	A. Trbovich	Date:	05/23/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–020

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | **Figure:**

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor E1 to Storage Pile

Emission Control Method(s)/ID No.(s): Dust Suppressant

Emission Point ID: FH–020 | **Transfer Point ID(s):**

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	2,300	1,324,022	6.5	70.0	0.29	0.08

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	ECT, 1997. Set at 70 pct to conservatively minimize actual emissions for PSD evaluation. Permitted control efficiency is 0 pct.

NOTES AND OBSERVATIONS

Actual PM_{10} emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel delivery was assumed to be equally divided between conveyors E1 and E2, or 1,324,022 tons per conveyor.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/16/97
Evaluated by:	A. Trbovich	Date:	09/16/97
Data Entered by:	A. Trbovich	Date:	09/16/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–021

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor E2 to Storage Pile

Emission Control Method(s)/ID No.(s): Dust Suppressant

Emission Point ID: FH–021 | Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	2,300	1,324,022	6.5	70.0	0.29	0.08

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	ECT, 1997. Set at 70 pct to conservatively minimize actual emissions for PSD evaluation. Permitted control efficiency is 0 pct.

NOTES AND OBSERVATIONS

Actual PM_{10} emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel delivery was assumed to be equally divided between conveyors E1 and E2, or 1,324,022 tons per conveyor.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/16/97
Evaluated by:	A. Trbovich	Date:	09/16/97
Data Entered by:	A. Trbovich	Date:	09/16/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–022

EMISSION SOURCE TYPE

STORAGE PILE WINDBLOWN FUGITIVE DUST EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description:	Fuel Storage – North Storage Pile
Emission Control Method(s)/ID No.(s):	Application of Chemical Dust Suppressant
Emission Point ID:	FH–022
Transfer Point ID(s):	

EMISSION ESTIMATION EQUATIONS

Estimates of fugitive PM_{10} were made using procedures contained in AP–42, Section 13.2.5, Industrial Wind Erosion.

Source: Section 13.2.5 – Industrial Wind Erosion, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Threshold Friction Velocity: 1.12 m/s

Control Efficiency: 50 pct

Pile Length (m): 215 Pile Width (m): 70 Pile Height (m): 21 Surface Area (m^2) 16,758

Meteorological Period	Friction Velocity (m/s)	Emission Potential (g/m^2)	Affected Pile Surface Area (pct)	Affected Area (m^2)	Actual PM_{10} Emission Rates (lb/hr)	(tpy)
14	1.30	6.38	4	670.3	0.59	0.0024
30	1.13	0.26	4	670.3	0.02	<0.0001
37	1.33	7.81	4	670.3	0.72	0.0014
65	1.48	16.52	14	2,346.1	5.34	0.0107
65	1.80	43.82	4	670.3	4.05	0.0081
77	1.30	6.38	4	670.3	0.59	0.0012
90	1.33	7.81	4	670.3	0.72	0.0014
			Maximum Per Period		9.39	N/A
			Total		N/A	0.0252

SOURCES OF INPUT DATA

Parameter	Data Source
Threshold Friction Velocity (m/s)	Uncrusted coal pile, Table 13.2.5–2., AP–42, January 1995.
Control Efficiency (pct)	Table 3.2.17–2, Workbook on Estimation and Dispersion Modeling for Fugitive Particulate Sources, UARG, September 1991.
Fuel Pile Dimensions (m)	Estimated: ECT, 1997.
Pile Surface Area (m^2)	Calculated: ECT, 1997.
Meteorological Periods	1986 NWS data, processed per AP–42, ECT, 1997.
Friction Velocity (m/s)	Equation, Section 13.2.5, AP–42, January 1995.
Potential Emission (g/m^2)	Equation, Section 13.2.5, AP–42, January 1995.
Affected Pile Surface Area (pct)	Table 13.2.5–3., Section 13.2.5, AP–42, January 1995.
Affected Area	Calculated: ECT, 1997.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/12/97
Evaluated by:	A. Trbovich	Date:	09/12/97
Data Entered by:	A. Trbovich	Date:	09/12/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–023a

EMISSION SOURCE TYPE

STORAGE PILE WINDBLOWN FUGITIVE DUST EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description:	Fuel Storage – East Portion of South Storage Pile
Emission Control Method(s)/ID No.(s):	Application of Chemical Dust Suppressant
Emission Point ID:	FH–023a
Transfer Point ID(s):	

EMISSION ESTIMATION EQUATIONS

Estimates of fugitive PM_{10} were made using procedures contained in AP–42, Section 13.2.5, Industrial Wind Erosion.

Source: Section 13.2.5 – Industrial Wind Erosion, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Threshold Friction Velocity: 1.12 m/s

Control Efficiency: 50 pct

Pile Length (m): 170 Pile Width (m): 91 Pile Height (m): 21 Surface Area (m^2) 16,754

Meteorological Period	Friction Velocity (m/s)	Emission Potential (g/m^2)	Affected Pile Surface Area (pct)	Affected Area (m^2)	Actual PM_{10} Emission Rates (lb/hr)	(tpy)
14	1.30	6.38	4	670.2	0.59	0.0024
30	1.13	0.26	4	670.2	0.02	<0.0001
37	1.33	7.81	4	670.2	0.72	0.0014
65	1.48	16.52	14	2,345.5	5.34	0.0107
65	1.80	43.82	4	670.2	4.05	0.0081
77	1.30	6.38	4	670.2	0.59	0.0012
90	1.33	7.81	4	670.2	0.72	0.0014
			Maximum Per Period		9.38	N/A
			Total		N/A	0.0252

SOURCES OF INPUT DATA

Parameter	Data Source
Threshold Friction Velocity (m/s)	Uncrusted coal pile, Table 13.2.5–2., AP–42, January 1995.
Control Efficiency (pct)	Table 3.2.17–2, Workbook on Estimation and Dispersion Modeling for Fugitive Particulate Sources, UARG, September 1991.
Fuel Pile Dimensions (m)	Estimated: ECT, 1997.
Pile Surface Area (m^2)	Calculated: ECT, 1997.
Meteorological Periods	1986 NWS data, processed per AP–42, ECT, 1997.
Friction Velocity (m/s)	Equation, Section 13.2.5, AP–42, January 1995.
Potential Emission (g/m^2)	Equation, Section 13.2.5, AP–42, January 1995.
Affected Pile Surface Area (pct)	Table 13.2.5–3., Section 13.2.5, AP–42, January 1995.
Affected Area	Calculated: ECT, 1997.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/12/97
Evaluated by:	A. Trbovich	Date:	09/12/97
Data Entered by:	A. Trbovich	Date:	09/12/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–023b

EMISSION SOURCE TYPE

STORAGE PILE WINDBLOWN FUGITIVE DUST EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Storage – West Portion of South Storage Pile

Emission Control Method(s)/ID No.(s): Application of Chemical Dust Suppressant

Emission Point ID: FH–023b

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Estimates of fugitive PM_{10} were made using procedures contained in AP–42, Section 13.2.5, Industrial Wind Erosion.

Source: Section 13.2.5 – Industrial Wind Erosion, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Threshold Friction Velocity: 1.12 m/s

Control Efficiency: 50 pct

Pile Length (m): 140 Pile Width (m): 125 Pile Height (m): 21 Surface Area (m^2) 18,855

Meteorological Period	Friction Velocity (m/s)	Emission Potential (g/m^2)	Affected Pile Surface Area (pct)	Affected Area (m^2)	Actual PM_{10} Emission Rates (lb/hr)	(tpy)
14	1.30	6.38	4	754.2	0.66	0.0013
30	1.13	0.26	4	754.2	0.03	<0.0001
37	1.33	7.81	4	754.2	0.81	0.0016
65	1.48	16.52	14	2,639.6	6.01	0.0120
65	1.80	43.82	4	754.2	4.55	0.0091
77	1.30	6.38	4	754.2	0.66	0.0013
90	1.33	7.81	4	754.2	0.81	0.0016
			Maximum Per Period		10.56	N/A
			Total		N/A	0.0270

SOURCES OF INPUT DATA

Parameter	Data Source
Threshold Friction Velocity (m/s)	Uncrusted coal pile, Table 13.2.5–2., AP–42, January 1995.
Control Efficiency (pct)	Table 3.2.17–2, Workbook on Estimation and Dispersion Modeling for Fugitive Particulate Sources, UARG, September 1991.
Fuel Pile Dimensions (m)	Estimated: ECT, 1997.
Pile Surface Area (m^2)	Calculated: ECT, 1997.
Meteorological Periods	1986 NWS data, processed per AP–42, ECT, 1997.
Friction Velocity (m/s)	Equation, Section 13.2.5, AP–42, January 1995.
Potential Emission (g/m^2)	Equation, Section 13.2.5, AP–42, January 1995.
Affected Pile Surface Area (pct)	Table 13.2.5–3., Section 13.2.5, AP–42, January 1995.
Affected Area	Calculated: ECT, 1997.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/12/97
Evaluated by:	A. Trbovich	Date:	09/12/97
Data Entered by:	A. Trbovich	Date:	09/12/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–024

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Underground Reclaim System to Conveyor F1

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant

Emission Point ID: FH–024

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	552	882,681	6.5	85.0	0.04	0.03

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Actual PM_{10} emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel reclaiming was assumed to be equally divided among the reclaimers F1, F2, and F4, or 882,681 tons per reclaimer.

Actual short–term emissions based on reclaimers F1, F2, and F4 operating simultaneously at 533 tph, each.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/16/97
Evaluated by:	A. Trbovich	Date:	09/16/97
Data Entered by:	A. Trbovich	Date:	09/16/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–025

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | **Figure:**

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Underground Reclaim System to Conveyor F4

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant

Emission Point ID: FH–025 | **Transfer Point ID(s):**

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	553	882,681	6.5	85.0	0.04	0.03

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Actual PM_{10} emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel reclaiming was assumed to be equally divided among the reclaimers F1, F2, and F4, or 882,681 tons per reclaimer.

Actual short–term emissions based on reclaimers F1, F2, and F4 operating simultaneously at 533 tph, each.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/16/97
Evaluated by:	A. Trbovich	Date:	09/16/97
Data Entered by:	A. Trbovich	Date:	09/16/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–027

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | **Figure:**

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Underground Reclaim System to Conveyor F2

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant

Emission Point ID: FH–027 | **Transfer Point ID(s):**

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	553	882,681	6.5	85.0	0.04	0.03

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Actual PM_{10} emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel reclaiming was assumed to be equally divided among the reclaimers F1, F2, and F4, or 882,681 tons per reclaimer.

Actual short–term emissions based on reclaimers F1, F2, and F4 operating simultaneously at 533 tph, each.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/16/97
Evaluated by:	A. Trbovich	Date:	09/16/97
Data Entered by:	A. Trbovich	Date:	09/16/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–028

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor F1 to Conveyor G1/G2

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant Sprays

Emission Point ID: FH–028

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	553	882,681	6.5	90.0	0.02	0.02

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Actual PM_{10} emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel reclaiming was assumed to be equally divided among the reclaimers F1, F2, and F4, or 882,681 tons per reclaimer.

Actual short–term emissions based on reclaimers F1, F2, and F4 operating simultaneously at 533 tph, each.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	05/23/97
Evaluated by:	A. Trbovich	Date:	05/23/97
Data Entered by:	A. Trbovich	Date:	05/23/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–029

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | **Figure:**

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor F4 to Conveyor G1/G2

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant Sprays

Emission Point ID: FH–029 | **Transfer Point ID(s):**

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	553	882,681	6.5	90.0	0.02	0.02

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Actual PM_{10} emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel reclaiming was assumed to be equally divided among the reclaimers F1, F2, and F4, or 882,681 tons per reclaimer.

Actual short–term emissions based on reclaimers F1, F2, and F4 operating simultaneously at 533 tph, each.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	05/23/97
Evaluated by:	A. Trbovich	Date:	05/23/97
Data Entered by:	A. Trbovich	Date:	05/23/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–031

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor F2 to Conveyor G1/G2

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant Sprays

Emission Point ID: FH–031 | Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	553	882,681	6.5	90.0	0.02	0.02

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Actual PM_{10} emissions based on 2,648,044 tpy of fuel used. Actual fuel used is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel reclaiming was assumed to be equally divided among relcaimers F1, F2, and F4, or 882,681 tons per reclaimer.

Actual short–term emissions based on reclaimers F1, F2, and F4 operating simultaneously at 533 tph, each.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	05/23/97
Evaluated by:	A. Trbovich	Date:	05/23/97
Data Entered by:	A. Trbovich	Date:	05/23/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–032

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor G1 to Hammermill Crusher 1

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant

Emission Point ID: FH–032 | Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	800	1,324,022	6.5	90.0	0.03	0.03

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Actual PM_{10} emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel reclaiming was assumed to be equally divided between conveyors G1 and G2, or 1,324,022 tons per conveyor.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	05/23/97
Evaluated by:	A. Trbovich	Date:	05/23/97
Data Entered by:	A. Trbovich	Date:	05/23/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–033

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor G2 to Hammermill Crusher 2

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant

Emission Point ID: FH–033

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	800	1,324,022	6.5	90.0	0.03	0.03

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Actual PM_{10} emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel reclaiming was assumed to be equally divided between conveyors G1 and G2, or 1,324,022 tons per conveyor.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	05/23/97
Evaluated by:	A. Trbovich	Date:	05/23/97
Data Entered by:	A. Trbovich	Date:	05/23/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–034

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | **Figure:**

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Hammermill Crusher 1 to Conveyor H1

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant Sprays

Emission Point ID: FH–034 | **Transfer Point ID(s):**

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	800	1,324,022	6.5	90.0	0.03	0.03

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Actual PM_{10} emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel reclaiming was assumed to be equally divided between conveyors H1 and H2, or 1,324,022 tons per conveyor.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	05/23/97
Evaluated by:	A. Trbovich	Date:	05/23/97
Data Entered by:	A. Trbovich	Date:	05/23/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–035

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Hammermill Crusher 2 to Conveyor H2

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant

Emission Point ID: FH–035

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0011 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0011 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.6	800	1,324,022	6.5	90.0	0.03	0.03

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Actual PM_{10} emissions based on 2,648,044 tpy of fuel used. Actual fuel used is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel reclaiming was assumed to be equally divided between conveyors H1 and H2, or 1,324,022 tons per conveyor.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	05/23/97
Evaluated by:	A. Trbovich	Date:	05/23/97
Data Entered by:	A. Trbovich	Date:	05/23/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric – F.J. Gannon Station

FH–036–
FH–041

EMISSION SOURCE TYPE

MATERIAL TRANSFER – CONTROLLED EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description:	Fuel Handling – Conveyors H1/H2 to Conveyors J1/J2, Conveyors J1/J2 to Bunkers	
Emission Control Method(s)/ID No.(s):	Rotoclones 1 through 6	
Emission Point ID:	FH –036 through FH–041	Transfer Point ID

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = Flow Rate (scfm) x (grain/scf) x (1 lb/7,000 grain) x (60 min/hr)

Emission (tpy) = Flow Rate (scfm) x (grain/scf) x (1 lb/7,000 grain) x (60 min/hr) x Operating Hours (hrs/yr) x (1 ton/2,000 lb)

Source: ECT, 1997.

INPUT DATA AND EMISSIONS CALCULATIONS

Operating Hours: 24 Hrs/Day 7 Days/Wk 8,760 Hrs/Yr

Transfer Points Controlled By Common Control Device	Transfer Point ID No.	Exhaust Flow Rate (scfm)	Exit Grain Loading (gr/scf)	Actual PM_{10} Emission Rates (lb/hr)	(tpy)
Unit 1 Fuel Bunker Loading		9,600	0.0023	0.19	0.83
Unit 2 Fuel Bunker Loading		9,600	0.0023	0.19	0.83
Unit 3 Fuel Bunker Loading		9,600	0.0023	0.19	0.83
Unit 4 Fuel Bunker Loading		9,600	0.0023	0.19	0.83
Unit 5 Fuel Bunker Loading		5,400	0.0041	0.19	0.83
Unit 6 Fuel Bunker Loading		9,600	0.0023	0.19	0.83

SOURCES OF INPUT DATA

Parameter	Data Source
Operating Hours	TEC, 1997.
Exhaust Flow Rate	TEC, 1997. Vendor data.
Exit Grain Loading	TEC, 1997. Based on FDEP Permit No. AO29–250140.

NOTES AND OBSERVATIONS

All Rotoclones are conservatively assumed to be operating whenever any bunkering occurs.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	01/20/97
Evaluated by:	A. Trbovich	Date:	01/20/97
Data Entered by:	A. Trbovich	Date:	01/20/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–044

EMISSION SOURCE TYPE

VEHICULAR TRAFFIC ON UNPAVED ROADS – FUGITIVE EMISSION SOURCES | Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description:	Fuel Handling – Storage Pile Maintenance
Emission Control Method(s)/ID No.(s):	Dust Suppressant Sprays
Emission Point ID:	FH–044

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = $0.36 \times 5.9 \times (s/12) \times (S/30) \times (W/3)^{0.7} \times (w/4)^{0.5} \times ((365-p)/365) \times$ vehicle miles per hour (VMT/hr) $\times (100-\text{control[pct]}/100)$

Emission (ton/yr) = $0.36 \times 5.9 \times (s/12) \times (S/30) \times (W/3)^{0.7} \times (w/4)^{0.5} \times ((365-p)/365) \times$ vehicle miles per year (VMT/yr) $\times$ (1 ton/ 2,000 lb) $\times (100-\text{control[pct]}/100)$

Source: Section 13.2.2 – Unpaved Roads, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Operating Hours: 16 Hrs/Day 7 Days/Wk 5,824 Hrs/Yr

s Silt Content (pct)	S Vehicle Speed (mph)	W Vehicle Weight (ton)	w No. of Wheels	p Rainfall Days	Vehicle Miles Travelled (VMT/hr)	Vehicle Miles Travelled (VMT/yr)	Control Efficiency (pct)	Actual PM_{10} Emission Rates (lb/hr)	Actual PM_{10} Emission Rates (tpy)
8.4	2.5	48	6	107	10.0	58,240	50.0	3.73	10.86

SOURCES OF INPUT DATA

Parameter	Data Source
Operating Hours	ECT, 1997. Estimated.
Silt Content, s	Table 13.2.2–1, Section 13.2.2, AP–42, January 1995.
Vehicle Speed, S	TEC, 1997. Average value.
Vehicle Weight, W	TEC, 1997. Average value.
No. of Wheels	TEC, 1997. Average value.
Rainfall Days	Climate of the States, Third Edition, 1985. Data for Tampa, FL.
Vehicle Miles Traveled	ECT, 1997. Estimated.
Control Efficiency	Table 3.2.15–2, Workbook on Estimation of Emissions and Dispersion Modeling for Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Estimate of vehicle miles traveled based on the use of four bulldozers on the storage piles.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/12/97
Evaluated by:	A. Trbovich	Date:	09/12/97
Data Entered by:	A. Trbovich	Date:	09/12/97
Reviewed by:		Date:	

APPENDIX B.3

FUTURE ACTUAL PM EMISSION CALCULATION SPREADSHEETS

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–002

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Barge to West Clamshell (Spillage)

Emission Control Method(s)/ID No.(s): Dust Suppressant

Emission Point ID: FH–002

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed	Actual Quantity Transferred		Material Moisture Content	Control Efficiency	Actual PM Emission Rates	
(mph)	(ton/hr)	(ton/yr)	(pct)	(pct)	(lb/hr)	(tpy)
8.6	1,150	4,000,000	6.5	95.0	0.07	0.12

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–003

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Barge to Continuous Unloader (Spillage)

Emission Control Method(s)/ID No.(s): Barge Enclosure and Dust Suppressant

Emission Point ID: FH–003 | Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	1,150	4,000,000	6.5	95.0	0.07	0.12

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3–10, Fugitive Emissions From Coal–Fired Power Plants, EPRI, June 1984.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–005

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – West Clamshell to West Hopper

Emission Control Method(s)/ID No.(s): Side Enclosure and Dust Suppressant

Emission Point ID: FH–005

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	1,150	4,000,000	6.5	95.0	0.07	0.12

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3–10, Fugitive Emissions From Coal–Fired Power Plants, EPRI, June 1984.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–006

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Continuous Unloader to Conveyor A

Emission Control Method(s)/ID No.(s): Enclosure and Dust Suppressant

Emission Point ID: FH–006

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	1,150	4,000,000	6.5	95.0	0.07	0.12

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3–16, Fugitive Emissions From Coal–Fired Power Plants, EPRI, June 1984.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–007

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor A to Continuous Feeder

Emission Control Method(s)/ID No.(s): Enclosure and Dust Suppressant

Emission Point ID: FH–007

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	1,150	4,000,000	6.5	95.0	0.07	0.12

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3–16, Fugitive Emissions From Coal–Fired Power Plants, EPRI, June 1984.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–009

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – West Hopper to Conveyor B

Emission Control Method(s)/ID No.(s): Enclosure and Dust Suppressant

Emission Point ID: FH–009 | Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control [pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control [pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	1,150	4,000,000	6.5	95.0	0.07	0.12

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3–16, Fugitive Emissions from Coal–Fired Power Plants, EPRI, June 1984.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–011

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor B to Conveyor C

Emission Control Method(s)/ID No.(s): Enclosure and Dust Suppressant

Emission Point ID: FH–011

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	2,300	4,000,000	6.5	90.0	0.29	0.25

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3–16, Fugitive Emissions From Coal–Fired Power Plants, EPRI, June 1984.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–012

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor C to Conveyor D1/D2

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant Sprays

Emission Point ID: FH–012 | Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	2,300	4,000,000	6.5	90.0	0.29	0.25

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling for Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–013

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Rail Car to Hopper

Emission Control Method(s)/ID No.(s): Enclosure and Dust Suppressant

Emission Point ID: FH–013

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	2,300	4,000,000	6.5	95.0	0.14	0.12

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3–16, Fugitive Emissions From Coal–Fired Power Plants, EPRI, June 1984.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–014

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Hopper to Conveyor L

Emission Control Method(s)/ID No.(s): Enclosure and Dust Suppressant

Emission Point ID: FH–014

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	2,300	4,000,000	6.5	95.0	0.14	0.12

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3–16, Fugitive Emissions From Coal–Fired Power Plants, EPRI, June 1984.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–015

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor L to Conveyor D1/D2

Emission Control Method(s)/ID No.(s): Enclosure and Dust Suppressant

Emission Point ID: FH–015

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	2,300	4,000,000	6.5	95.0	0.14	0.12

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3–16, Fugitive Emissions From Coal–Fired Power Plants, EPRI, June 1984.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–016

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor D1 to Conveyor M1

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant Sprays

Emission Point ID: FH–016

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed	Actual Quantity Transferred		Material Moisture Content	Control Efficiency	Actual PM Emission Rates	
(mph)	(ton/hr)	(ton/yr)	(pct)	(pct)	(lb/hr)	(tpy)
8.6	2,300	4,000,000	6.5	90.0	0.29	0.25

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling for Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Short–term (24–hr average) dispersion modeling emissions rates assume both stackers operating simultaneously, each at 2,300 tph for a total rate of 4,600 tph.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–017

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor D2 to Conveyor M2

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant Sprays

Emission Point ID: FH–017 | Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	2,300	4,000,000	6.5	90.0	0.29	0.25

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–018

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor M1 to Conveyor E1

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant Sprays

Emission Point ID: FH–018

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	2,300	4,000,000	6.5	90.0	0.29	0.25

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–019

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor M2 to Conveyor E2

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant Sprays

Emission Point ID: FH–019

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	2,300	4,000,000	6.5	90.0	0.29	0.25

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–020

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | **Figure:**

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor E1 to Storage Pile

Emission Control Method(s)/ID No.(s): Dust Suppressant

Emission Point ID: FH–020 | **Transfer Point ID(s):**

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	2,300	4,000,000	6.5	70.0	0.86	0.75

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/16/97
Evaluated by:	A. Trbovich	Date:	09/16/97
Data Entered by:	A. Trbovich	Date:	09/16/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–021

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | **Figure:**

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor E2 to Storage Pile

Emission Control Method(s)/ID No.(s): Dust Suppressant

Emission Point ID: FH–021 | **Transfer Point ID(s):**

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	2,300	4,000,000	6.5	70.0	0.86	0.75

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/16/97
Evaluated by:	A. Trbovich	Date:	09/16/97
Data Entered by:	A. Trbovich	Date:	09/16/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–022

EMISSION SOURCE TYPE

STORAGE PILE WINDBLOWN FUGITIVE DUST EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Storage – North Storage Pile

Emission Control Method(s)/ID No.(s): Application of Chemical Dust Suppressant

Emission Point ID: FH–022

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Estimates of fugitive PM were made using procedures contained in AP–42, Section 13.2.5, Industrial Wind Erosion.

Source: Section 13.2.5 – Industrial Wind Erosion, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Threshold Friction Velocity: 1.12 m/s

Control Efficiency: 50 pct

Pile Length (m): 215

Pile Width (m): 70

Pile Height (m): 21

Surface Area (m^2) 16,758

Meteorological Period	Friction Velocity (m/s)	Emission Potential (g/m^2)	Affected Pile Surface Area (pct)	Affected Area (m^2)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
14	1.30	6.38	4	670.3	1.18	0.0024
30	1.13	0.26	4	670.3	0.05	<0.0001
37	1.33	7.81	4	670.3	1.44	0.0029
65	1.48	16.52	14	2,346.1	10.68	0.0214
65	1.80	43.82	4	670.3	8.09	0.0162
77	1.30	6.38	4	670.3	1.18	0.0024
90	1.33	7.81	4	670.3	1.44	0.0029
			Maximum Per Period		18.77	N/A
				Total	N/A	0.0480

SOURCES OF INPUT DATA

Parameter	Data Source
Threshold Friction Velocity (m/s)	Uncrusted coal pile, Table 13.2.5–2., AP–42, January 1995.
Control Efficiency (pct)	Table 3.2.17–2, Workbook on Estimation and Dispersion Modeling for Fugitive Particulate Sources, UARG, September 1991.
Fuel Pile Dimensions (m)	Estimated: ECT, 1997.
Pile Surface Area (m^2)	Calculated: ECT, 1997.
Meteorological Periods	1986 NWS data, processed per AP–42, ECT, 1997.
Friction Velocity (m/s)	Equation, Section 13.2.5, AP–42, January 1995.
Potential Emission (g/m^2)	Equation, Section 13.2.5, AP–42, January 1995.
Affected Pile Surface Area (pct)	Table 13.2.5–3., Section 13.2.5, AP–42, January 1995.
Affected Area	Calculated: ECT, 1997.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/16/97
Evaluated by:	A. Trbovich	Date:	09/16/97
Data Entered by:	A. Trbovich	Date:	09/16/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–023a

EMISSION SOURCE TYPE

STORAGE PILE WINDBLOWN FUGITIVE DUST EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description:	Fuel Storage – East Portion of South Storage Pile
Emission Control Method(s)/ID No.(s):	Application of Chemical Dust Suppressant
Emission Point ID:	FH–023a
Transfer Point ID(s):	

EMISSION ESTIMATION EQUATIONS

Estimates of fugitive PM were made using procedures contained in AP–42, Section 13.2.5, Industrial Wind Erosion.

Source: Section 13.2.5 – Industrial Wind Erosion, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Threshold Friction Velocity:	1.12 m/s		Control Efficiency:	50 pct			
Pile Length (m):	170	Pile Width (m):	91	Pile Height (m):	21	Surface Area (m^2)	16,754

Meteorological Period	Friction Velocity (m/s)	Emission Potential (g/m^2)	Affected Pile Surface Area (pct)	Affected Area (m^2)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
14	1.30	6.38	4	670.2	1.18	0.0024
30	1.13	0.26	4	670.2	0.05	<0.0001
37	1.33	7.81	4	670.2	1.44	0.0029
65	1.48	16.52	14	2,345.5	10.68	0.0214
85	1.80	43.82	4	670.2	8.09	0.0162
77	1.30	6.38	4	670.2	1.18	0.0024
90	1.33	7.81	4	670.2	1.44	0.0029
			Maximum Per Period		18.77	N/A
				Total	N/A	0.0480

SOURCES OF INPUT DATA

Parameter	Data Source
Threshold Friction Velocity (m/s)	Uncrusted coal pile, Table 13.2.5–2., AP–42, January 1995.
Control Efficiency (pct)	Table 3.2.17–2, Workbook on Estimation and Dispersion Modeling for Fugitive Particulate Sources, UARG, September 1991.
Fuel Pile Dimensions (m)	Estimated: ECT, 1997.
Pile Surface Area (m^2)	Calculated: ECT, 1997.
Meteorological Periods	1986 NWS data, processed per AP–42, ECT, 1997.
Friction Velocity (m/s)	Equation, Section 13.2.5, AP–42, January 1995.
Potential Emission (g/m^2)	Equation, Section 13.2.5, AP–42, January 1995.
Affected Pile Surface Area (pct)	Table 13.2.5–3., Section 13.2.5, AP–42, January 1995.
Affected Area	Calculated: ECT, 1997.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/16/97
Evaluated by:	A. Trbovich	Date:	09/16/97
Data Entered by:	A. Trbovich	Date:	09/16/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–023b

EMISSION SOURCE TYPE

STORAGE PILE WINDBLOWN FUGITIVE DUST EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Storage – West Portion of South Storage Pile

Emission Control Method(s)/ID No.(s): Application of Chemical Dust Suppressant

Emission Point ID: FH–023b

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Estimates of fugitive PM were made using procedures contained in AP–42, Section 13.2.5, Industrial Wind Erosion.

Source: Section 13.2.5 – Industrial Wind Erosion, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Threshold Friction Velocity: 1.12 m/s

Control Efficiency: 50 pct

Pile Length (m): 140

Pile Width (m): 125

Pile Height (m): 21

Surface Area (m^2): 18,855

Meteorological Period	Friction Velocity (m/s)	Emission Potential (g/m^2)	Affected Pile Surface Area (pct)	Affected Area (m^2)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
14	1.30	6.38	4	754.2	1.33	0.0027
30	1.13	0.26	4	754.2	0.05	0.0001
37	1.33	7.81	4	754.2	1.62	0.0032
65	1.48	16.52	14	2,639.6	12.01	0.0240
65	1.80	43.82	4	754.2	9.11	0.0182
77	1.30	6.38	4	754.2	1.33	0.0027
90	1.33	7.81	4	754.2	1.62	0.0032
			Maximum Per Period		21.12	N/A
			Total		N/A	0.0541

SOURCES OF INPUT DATA

Parameter	Data Source
Threshold Friction Velocity (m/s)	Uncrusted coal pile, Table 13.2.5–2., AP–42, January 1995.
Control Efficiency (pct)	Table 3.2.17–2, Workbook on Estimation and Dispersion Modeling for Fugitive Particulate Sources, UARG, September 1991.
Fuel Pile Dimensions (m)	Estimated: ECT, 1997.
Pile Surface Area (m^2)	Calculated: ECT, 1997.
Meteorological Periods	1986 NWS data, processed per AP–42, ECT, 1997.
Friction Velocity (m/s)	Equation, Section 13.2.5, AP–42, January 1995.
Potential Emission (g/m^2)	Equation, Section 13.2.5, AP–42, January 1995.
Affected Pile Surface Area (pct)	Table 13.2.5–3., Section 13.2.5, AP–42, January 1995.
Affected Area	Calculated: ECT, 1997.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/16/97
Evaluated by:	A. Trbovich	Date:	09/16/97
Data Entered by:	A. Trbovich	Date:	09/16/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–024

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Underground Reclaim System to Conveyor F1

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant

Emission Point ID: FH–024

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed	Actual Quantity Transferred		Material Moisture Content	Control Efficiency	Actual PM Emission Rates	
(mph)	(ton/hr)	(ton/yr)	(pct)	(pct)	(lb/hr)	(tpy)
8.6	400	4,000,000	6.5	85.0	0.07	0.37

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/16/97
Evaluated by:	A. Trbovich	Date:	09/16/97
Data Entered by:	A. Trbovich	Date:	09/16/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–025

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | **Figure:**

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Underground Reclaim System to Conveyor F4

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant

Emission Point ID: FH–025 | **Transfer Point ID(s):**

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	400	4,000,000	6.5	85.0	0.07	0.37

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/16/97
Evaluated by:	A. Trbovich	Date:	09/16/97
Data Entered by:	A. Trbovich	Date:	09/16/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–026

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | **Figure:**

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Underground Reclaim System to Conveyor F3

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant

Emission Point ID: FH–026 | **Transfer Point ID(s):**

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	400	4,000,000	6.5	85.0	0.07	0.37

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/16/97
Evaluated by:	A. Trbovich	Date:	09/16/97
Data Entered by:	A. Trbovich	Date:	09/16/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–027

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | **Figure:**

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Underground Reclaim System to Conveyor F2

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant

Emission Point ID: FH–027 | **Transfer Point ID(s):**

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	400	4,000,000	6.5	85.0	0.07	0.37

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/16/97
Evaluated by:	A. Trbovich	Date:	09/16/97
Data Entered by:	A. Trbovich	Date:	09/16/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–028

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor F1 to Conveyor G1/G2

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant Sprays

Emission Point ID: FH–028

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed	Actual Quantity Transferred		Material Moisture Content	Control Efficiency	Actual PM Emission Rates	
(mph)	(ton/hr)	(ton/yr)	(pct)	(pct)	(lb/hr)	(tpy)
8.6	400	4,000,000	6.5	90.0	0.05	0.25

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–029

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | **Figure:**

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor F4 to Conveyor G1/G2

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant Sprays

Emission Point ID: FH–029 | **Transfer Point ID(s):**

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	400	4,000,000	6.5	90.0	0.05	0.25

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–030

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor F3 to Conveyor G1/G2

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant Sprays

Emission Point ID: FH–030

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed	Actual Quantity Transferred		Material Moisture Content	Control Efficiency	Actual PM Emission Rates	
(mph)	(ton/hr)	(ton/yr)	(pct)	(pct)	(lb/hr)	(tpy)
8.6	400	4,000,000	6.5	90.0	0.05	0.25

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–031

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor F2 to Conveyor G1/G2

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant Sprays

Emission Point ID: FH–031

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control [pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control [pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed	Actual Quantity Transferred		Material Moisture Content	Control Efficiency	Actual PM Emission Rates	
(mph)	(ton/hr)	(ton/yr)	(pct)	(pct)	(lb/hr)	(tpy)
8.6	400	4,000,000	6.5	90.0	0.05	0.25

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–032

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor G1 to Hammermill Crusher 1

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant

Emission Point ID: FH–032 | Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	800	4,000,000	6.5	90.0	0.10	0.25

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–033

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor G2 to Hammermill Crusher 2

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant

Emission Point ID: FH–033

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	800	4,000,000	6.5	90.0	0.10	0.25

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–034

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Hammermill Crusher 1 to Conveyor H1

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant Sprays

Emission Point ID: FH–034

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	800	4,000,000	6.5	90.0	0.10	0.25

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–035

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Hammermill Crusher 2 to Conveyor H2

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant

Emission Point ID: FH–035

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	800	4,000,000	6.5	90.0	0.10	0.25

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–036–
FH–041

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyors H1/H2 to Conveyors J1/J2, Conveyors J1/J2 to Bunkers 1–6

Emission Control Method(s)/ID No.(s): Rotoclones 1 through 6

Emission Point ID: FH–036 through FH–041

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
2.8	1,600	4,000,000	6.5	75.0	0.12	0.14

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Typical Indraft Velocity for Coal Bunkers, ECT 1994.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Control Equipment Vendor Data AAF, 1960.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–042

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor D1 to Conveyor G1/G2 (By–Pass Storage)

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant Sprays

Emission Point ID: FH–042 | Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	2,300	4,000,000	6.5	90.0	0.29	0.25

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

If the fuel stackers and fuel stacker bypasses are operated simultaneously, the total amount of fuel handled will not exceed 4,600 tph.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–043

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor D2 to Conveyor G1/G2 (By–Pass Storage)

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant Sprays

Emission Point ID: FH–043

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	2,300	4,000,000	6.5	90.0	0.29	0.25

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

If the fuel stackers and fuel stacker bypasses are operated simultaneously, the total amount of fuel handled will not exceed 4,600 tph.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–044

EMISSION SOURCE TYPE

VEHICULAR TRAFFIC ON UNPAVED ROADS – FUGITIVE EMISSION SOURCES | Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description:	Fuel Handling – Storage Pile Maintenance
Emission Control Method(s)/ID No.(s):	Dust Suppressant Sprays
Emission Point ID:	FH–044

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 5.9 x (s/12) x (S/30) x $(W/3)^{0.7}$ x $(w/4)^{0.5}$ x ((365–p)/365) x vehicle miles per hour (VMT/hr) x (100–control[pct]/100)

Emission (ton/yr) = 5.9 x (s/12) x (S/30) x $(W/3)^{0.7}$ x $(w/4)^{0.5}$ x ((365–p)/365) x vehicle miles per year (VMT/yr) x (1 ton/ 2,000 lb) x (100–control[pct]/100)

Source: Section 13.2.2 – Unpaved Roads, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Operating Hours: 16 Hrs/Day 7 Days/Wk 5,824 Hrs/Yr

s Silt Content (pct)	S Vehicle Speed (mph)	W Vehicle Weight (ton)	w No. of Wheels	p Rainfall Days	Vehicle Miles Travelled (VMT/hr)	Vehicle Miles Travelled (VMT/yr)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.4	2.5	48	6	107	10.0	58,240	50.0	10.38	30.21

SOURCES OF INPUT DATA

Parameter	Data Source
Operating Hours	ECT, 1997. Estimated.
Silt Content, s	Table 13.2.2–1, Section 13.2.2, AP–42, January 1995.
Vehicle Speed, S	TEC, 1997. Average value.
Vehicle Weight, W	TEC, 1997. Average value.
No. of Wheels	TEC, 1997. Average value.
Rainfall Days	Climate of the States, Third Edition, 1985. Data for Tampa, FL.
Vehicle Miles Traveled	ECT, 1997. Estimated.
Control Efficiency	Table 3.2.15–2, Workbook on Estimation of Emissions and Dispersion Modeling for Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Estimate of vehicle miles traveled based on the use of four bulldozers on the storage piles.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/16/97
Evaluated by:	A. Trbovich	Date:	09/16/97
Data Entered by:	A. Trbovich	Date:	09/16/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

AH–001

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Auxiliary Handling – Truck Unloading

Emission Control Method(s)/ID No.(s): Dust Supressant

Emission Point ID: AH–001

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	400	362,025	6.5	85.0	0.07	0.03

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	TEC, 1997. Average fuel moisture content.
Control Efficiency	TEC, 1997.

NOTES AND OBSERVATIONS

Annual quantity transferred based on Units 1 through 4 firing an 80/20 coal/TDF blend at maximum capacity for 8,760 hrs/yr.

5,989 MMBtu/hr x 0.2 / 14,492 Btu/lb TDF x 8,760 hrs/yr x 1 ton/2,000 lb = 362,025 tpy

Alternate fuel includes TDF and WDF. The actual annual quantity of TDF and WDF transferred may vary, but the actual total quantity of alternate fuel transferred will not exceed 362,025 tpy.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

AH–002

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | **Figure:**

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Auxiliary Handling – Storage Pile to Hopper

Emission Control Method(s)/ID No.(s): Enclosure and Dust Suppressant

Emission Point ID: AH–002 | **Transfer Point ID(s):**

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	400	362,025	6.5	90.0	0.05	0.02

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	TEC, 1997. Average fuel moisture content.
Control Efficiency	Table 3–16, Fugitive Emission from Coal–Fired Power Plants, EPRI, June 1984.

NOTES AND OBSERVATIONS

Annual quantity transferred based on Units 1 through 4 firing an 80/20 coal/TDF blend at maximum capacity for 8,760 hrs/yr.

5,989 MMBtu/hr x 0.2 / 14,492 Btu/lb TDF x 8,760 hrs/yr x 1 ton/2,000 lb = 362,025 tpy

Alternate fuel includes TDF and WDF. The actual annual quantity of TDF and WDF transferred may vary, but the actual total quantity of alternate fuel transferred will not exceed 362,025 tpy.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

AH–003

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Auxiliary Handling – Hopper to Conveyor T

Emission Control Method(s)/ID No.(s): Enclosure and Dust Suppressant

Emission Point ID: AH–003

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	400	362,025	6.5	90.0	0.05	0.02

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	TEC, 1997. Average fuel moisture content.
Control Efficiency	Table 3–16, Fugitive Emission from Coal–Fired Power Plants, EPRI, June 1984.

NOTES AND OBSERVATIONS

Annual quantity transferred based on Units 1 through 4 firing an 80/20 coal/TDF blend at maximum capacity for 8,760 hrs/yr.

5,989 MMBtu/hr x 0.2 / 14,492 Btu/lb TDF x 8,760 hrs/yr x 1 ton/2,000 lb = 362,025 tpy

Alternate fuel includes TDF and WDF. The actual annual quantity of TDF and WDF transferred may vary, but the actual total quantity of alternate fuel transferred will not exceed 362,025 tpy.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

AH–004

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Auxiliary Handling – Conveyor T to Conveyor U

Emission Control Method(s)/ID No.(s): Enclosure and Dust Suppressant

Emission Point ID: AH–004

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	400	362,025	6.5	90.0	0.05	0.02

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	TEC, 1997. Average fuel moisture content.
Control Efficiency	Table 3–16, Fugitive Emission from Coal–Fired Power Plants, EPRI, June 1984.

NOTES AND OBSERVATIONS

Annual quantity transferred based on Units 1 through 4 firing an 80/20 coal/TDF blend at maximum capacity for 8,760 hrs/yr.

5,989 MMBtu/hr x 0.2 / 14,492 Btu/lb TDF x 8,760 hrs/yr x 1 ton/2,000 lb = 362,025 tpy

Alternate fuel includes TDF and WDF. The actual annual quantity of TDF and WDF transferred may vary, but the actual total quantity of alternate fuel transferred will not exceed 362,025 tpy.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

AH–005

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | **Figure:**

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Auxiliary Handling – Conveyor U to Conveyors H1 and H2

Emission Control Method(s)/ID No.(s): Enclosure and Dust Suppressant

Emission Point ID: AH–005 | **Transfer Point ID(s):**

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	400	362,025	6.5	90.0	0.05	0.02

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	TEC, 1997. Average fuel moisture content.
Control Efficiency	Table 3–16, Fugitive Emission from Coal–Fired Power Plants, EPRI, June 1984.

NOTES AND OBSERVATIONS

Annual quantity transferred based on Units 1 through 4 firing an 80/20 coal/TDF blend at maximum capacity for 8,760 hrs/yr.

5,989 MMBtu/hr x 0.2 / 14,492 Btu/lb TDF x 8,760 hrs/yr x 1 ton/2,000 lb = 362,025 tpy

Alternate fuel includes TDF and WDF. The actual annual quantity of TDF and WDF transferred may vary, but the actual total quantity of alternate fuel transferred will not exceed 362,025 tpy.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

APPENDIX B.4

ACTUAL PM EMISSION CALCULATION SPREADSHEETS

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–002

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Barge to West Clamshell (Spillage)

Emission Control Method(s)/ID No.(s): Barge Enclosure

Emission Point ID: FH–002

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	1,150	882,681	6.5	50.0	0.72	0.27

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	ECT, 1997. Set at 50 pct to conservatively minimize actual emissions for PSD evaluation. Permitted control efficiency is 0 pct.

NOTES AND OBSERVATIONS

Actual PM emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel delivery was assumed to be equally divided among the barge clamshell, barge continuous, and rail unloading systems, or 882,681 tons per system.

Actual short–term emissions based on clamshell and continuous unloading systems operating simultaneously at 1,150 tph, each.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/16/97
Evaluated by:	A. Trbovich	Date:	09/16/97
Data Entered by:	A. Trbovich	Date:	09/16/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–003

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Barge to Continuous Unloader (Spillage)

Emission Control Method(s)/ID No.(s): Barge Enclosure

Emission Point ID: FH–003

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	1,150	882,681	6.5	50.0	0.72	0.27

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	ECT, 1997. Set at 50 pct to conservatively minimize actual emissions for PSD evaluation. Permitted control efficiency is 0 pct.

NOTES AND OBSERVATIONS

Actual PM emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel delivery was assumed to be equally divided among the barge clamshell, barge continuous, and rail unloading systems, or 882,681 tons per system.

Actual short–term emissions based on clamshell and continuous unloading systems operating simultaneously at 1,150 tph, each.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/16/97
Evaluated by:	A. Trbovich	Date:	09/16/97
Data Entered by:	A. Trbovich	Date:	09/16/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–005

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | **Figure:**

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – West Clamshell to West Hopper

Emission Control Method(s)/ID No.(s): Side Enclosure

Emission Point ID: FH–005 | **Transfer Point ID(s):**

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed	Actual Quantity Transferred		Material Moisture Content	Control Efficiency	Actual PM Emission Rates	
(mph)	(ton/hr)	(ton/yr)	(pct)	(pct)	(lb/hr)	(tpy)
8.6	1,150	882,681	6.5	85.0	0.21	0.08

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	ECT, 1997. Set at 85 pct to conservatively minimize actual emissions for PSD evaluation. Permitted control efficiency is 25 pct.

NOTES AND OBSERVATIONS

Actual PM emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel delivery was assumed to be equally divided among the barge clamshell, barge continuous, and rail unloading systems, or 882,681 tons per system.

Actual short–term emissions based on clamshell and continuous unloading systems operating simultaneously at 1,150 tph, each.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/16/97
Evaluated by:	A. Trbovich	Date:	09/16/97
Data Entered by:	A. Trbovich	Date:	09/16/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–006

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | **Figure:**

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Continuous Unloader to Conveyor A

Emission Control Method(s)/ID No.(s): Enclosure

Emission Point ID: FH–006 | **Transfer Point ID(s):**

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	1,150	882,681	6.5	85.0	0.21	0.08

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	ECT, 1997. Set at 85 pct to conservatively minimize actual emissions for PSD evaluation. Permitted control efficiency is 25 pct.

NOTES AND OBSERVATIONS

Actual PM emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel delivery was assumed to be equally divided among the barge clamshell, barge continuous, and rail unloading systems, or 882,681 tons per system.

Actual short–term emissions based on clamshell and continuous unloading systems operating simultaneously at 1,150 tph, each.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/16/97
Evaluated by:	A. Trbovich	Date:	09/16/97
Data Entered by:	A. Trbovich	Date:	09/16/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–007

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor A to Continuous Feeder

Emission Control Method(s)/ID No.(s): Enclosure

Emission Point ID: FH–007

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	1,150	882,681	6.5	85.0	0.21	0.08

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	ECT, 1997. Set at 85 pct to conservatively minimize actual emissions for PSD evaluation. Permitted control efficiency is 50 pct.

NOTES AND OBSERVATIONS

Actual PM emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel delivery was assumed to be equally divided among the barge clamshell, barge continuous, and rail unloading systems, or 882,681 tons per system.

Actual short–term emissions based on clamshell and continuous unloading systems operating simultaneously at 1,150 tph, each.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/16/97
Evaluated by:	A. Trbovich	Date:	09/16/97
Data Entered by:	A. Trbovich	Date:	09/16/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–009

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | **Figure:**

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – West Hopper to Conveyor B

Emission Control Method(s)/ID No.(s): Enclosure

Emission Point ID: FH–009 | **Transfer Point ID(s):**

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	1,150	882,681	6.5	85.0	0.21	0.08

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	ECT, 1997. Set at 85 pct to conservatively minimize actual emissions for PSD evaluation. Permitted control efficiency is 50 pct.

NOTES AND OBSERVATIONS

Actual PM emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel delivery was assumed to be equally divided among the barge clamshell, barge continuous, and rail unloading systems, or 882,681 tons per system.

Actual short–term emissions based on clamshell and continuous unloading systems operating simultaneously at 1,150 tph, each

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/16/97
Evaluated by:	A. Trbovich	Date:	09/16/97
Data Entered by:	A. Trbovich	Date:	09/16/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–011

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor B to Conveyor C

Emission Control Method(s)/ID No.(s): Enclosure

Emission Point ID: FH–011

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	2,300	1,765,362	6.5	85.0	0.43	0.16

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	ECT, 1997. Set at 85 pct to conservatively minimize actual emissions for PSD evaluation. Permitted control efficiency is 50 pct.

NOTES AND OBSERVATIONS

Actual PM emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel delivery was assumed to be equally divided among the barge clamshell, barge continuous, and rail unloading systems, or 882,681 tons per system.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/16/97
Evaluated by:	A. Trbovich	Date:	09/16/97
Data Entered by:	A. Trbovich	Date:	09/16/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–012

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | **Figure:**

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor C to Conveyor D1/D2

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant Sprays

Emission Point ID: FH–012 | **Transfer Point ID(s):**

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	2,300	1,765,362	6.5	90.0	0.29	0.11

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling for Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Actual PM emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel delivery was assumed to be equally divided among the barge clamshell, barge continuous, and rail unloading systems, or 882,681 tons per system.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–013

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Rail Car to Hopper

Emission Control Method(s)/ID No.(s): Partial Enclosure

Emission Point ID: FH–013

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	2,300	882,681	6.5	85.0	0.43	0.08

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	ECT, 1997. Set at 85 pct to conservatively minimize actual emissions for PSD evaluation. Permitted control efficiency is 40 pct.

NOTES AND OBSERVATIONS

Actual PM emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel delivery was assumed to be equally divided among the barge clamshell, barge continuous, and rail unloading systems, or 882,681 tons per system.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/16/97
Evaluated by:	A. Trbovich	Date:	09/16/97
Data Entered by:	A. Trbovich	Date:	09/16/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–014

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Hopper to Conveyor L

Emission Control Method(s)/ID No.(s): Enclosure

Emission Point ID: FH–014

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	2,300	882,681	6.5	85.0	0.43	0.08

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	ECT, 1997. Set at 85 pct to conservatively minimize actual emissions for PSD evaluation. Permitted control efficiency is 50 pct.

NOTES AND OBSERVATIONS

Actual PM emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel delivery was assumed to be equally divided among the barge clamshell, barge continuous, and rail unloading systems, or 882,681 tons per system.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/16/97
Evaluated by:	A. Trbovich	Date:	09/16/97
Data Entered by:	A. Trbovich	Date:	09/16/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–015

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor L to Conveyor D1/D2

Emission Control Method(s)/ID No.(s): Enclosure

Emission Point ID: FH–015

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	2,300	882,681	6.5	90.0	0.29	0.05

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3–16, Fugitive Emissions From Coal–Fired Power Plants, EPRI, June 1984.

NOTES AND OBSERVATIONS

Actual PM emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel delivery was assumed to be equally divided among the barge clamshell, barge continuous, and rail unloading systems, or 882,681 tons per system.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/16/97
Evaluated by:	A. Trbovich	Date:	09/16/97
Data Entered by:	A. Trbovich	Date:	09/16/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–016

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | **Figure:**

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor D1 to Conveyor M1

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant Sprays

Emission Point ID: FH–016 | **Transfer Point ID(s):**

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	2,300	1,324,022	6.5	90.0	0.29	0.08

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling for Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Actual PM emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel delivery was assumed to be equally divided between conveyors D1 and D2, or 1,324,022 tons per conveyor.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–017

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor D2 to Conveyor M2

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant Sprays

Emission Point ID: FH–017

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	2,300	1,324,022	6.5	90.0	0.29	0.08

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Actual PM emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel delivery was assumed to be equally divided between conveyors D1 and D2, or 1,324,022 tons per conveyor.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–018

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | **Figure:**

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor M1 to Conveyor E1

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant Sprays

Emission Point ID: FH–018 | **Transfer Point ID(s):**

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	2,300	1,324,022	6.5	90.0	0.29	0.08

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Actual PM emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel delivery was assumed to be equally divided between conveyors M1 and M2, or 1,324,022 tons per conveyor.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–019

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | **Figure:**

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor M2 to Conveyor E2

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant Sprays

Emission Point ID: FH–019 | **Transfer Point ID(s):**

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	2,300	1,324,022	6.5	90.0	0.29	0.08

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Actual PM emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel delivery was assumed to be equally divided between conveyors M1 and M2, or 1,324,022 tons per conveyor.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–020

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor E1 to Storage Pile

Emission Control Method(s)/ID No.(s): Dust Suppressant

Emission Point ID: FH–020

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	2,300	1,324,022	6.5	70.0	0.86	0.25

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	ECT, 1997. Set at 70 pct to conservatively minimize actual emissions for PSD evaluation. Permitted control efficiency is 0 pct.

NOTES AND OBSERVATIONS

Actual PM emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel delivery was assumed to be equally divided between conveyors E1 and E2, or 1,324,022 tons per conveyor.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/16/97
Evaluated by:	A. Trbovich	Date:	09/16/97
Data Entered by:	A. Trbovich	Date:	09/16/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–021

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | **Figure:**

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor E2 to Storage Pile

Emission Control Method(s)/ID No.(s): Dust Suppressant

Emission Point ID: FH–021 | **Transfer Point ID(s):**

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	2,300	1,324,022	6.5	70.0	0.86	0.25

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	ECT, 1997. Set at 70 pct to conservatively minimize actual emissions for PSD evaluation. Permitted control efficiency is 0 pct.

NOTES AND OBSERVATIONS

Actual PM emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel delivery was assumed to be equally divided between conveyors E1 and E2, or 1,324,022 tons per conveyor.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/16/97
Evaluated by:	A. Trbovich	Date:	09/16/97
Data Entered by:	A. Trbovich	Date:	09/16/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–022

EMISSION SOURCE TYPE

STORAGE PILE WINDBLOWN FUGITIVE DUST EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Storage – North Storage Pile

Emission Control Method(s)/ID No.(s): Application of Chemical Dust Suppressant

Emission Point ID: FH–022

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Estimates of fugitive PM were made using procedures contained in AP–42, Section 13.2.5, Industrial Wind Erosion.

Source: Section 13.2.5 – Industrial Wind Erosion, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Threshold Friction Velocity: 1.12 m/s

Control Efficiency: 50 pct

Pile Length (m): 215 Pile Width (m): 70 Pile Height (m): 21 Surface Area (m^2) 16,758

Meteorological Period	Friction Velocity (m/s)	Emission Potential (g/m^2)	Affected Pile Surface Area (pct)	Affected Area (m^2)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
14	1.30	6.38	4	670.3	1.18	0.0024
30	1.13	0.26	4	670.3	0.05	<0.0001
37	1.33	7.81	4	670.3	1.44	0.0029
65	1.48	16.52	14	2,346.1	10.68	0.0214
65	1.80	43.82	4	670.3	8.09	0.0162
77	1.30	6.38	4	670.3	1.18	0.0024
90	1.33	7.81	4	670.3	1.44	0.0029
			Maximum Per Period		18.77	N/A
			Total		N/A	0.0480

SOURCES OF INPUT DATA

Parameter	Data Source
Threshold Friction Velocity (m/s)	Uncrusted coal pile, Table 13.2.5–2., AP–42, January 1995.
Control Efficiency (pct)	Table 3.2.17–2, Workbook on Estimation and Dispersion Modeling for Fugitive Particulate Sources, UARG, September 1991.
Fuel Pile Dimensions (m)	Estimated: ECT, 1997.
Pile Surface Area (m^2)	Calculated: ECT, 1997.
Meteorological Periods	1986 NWS data, processed per AP–42, ECT, 1997.
Friction Velocity (m/s)	Equation, Section 13.2.5, AP–42, January 1995.
Potential Emission (g/m^2)	Equation, Section 13.2.5, AP–42, January 1995.
Affected Pile Surface Area (pct)	Table 13.2.5–3., Section 13.2.5, AP–42, January 1995.
Affected Area	Calculated: ECT, 1997.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/16/97
Evaluated by:	A. Trbovich	Date:	09/16/97
Data Entered by:	A. Trbovich	Date:	09/16/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–023a

EMISSION SOURCE TYPE

STORAGE PILE WINDBLOWN FUGITIVE DUST EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Storage – East Portion of South Storage Pile

Emission Control Method(s)/ID No.(s): Application of Chemical Dust Suppressant

Emission Point ID: FH–023a

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Estimates of fugitive PM were made using procedures contained in AP–42, Section 13.2.5, Industrial Wind Erosion.

Source: Section 13.2.5 – Industrial Wind Erosion, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Threshold Friction Velocity: 1.12 m/s

Control Efficiency: 50 pct

Pile Length (m): 170 Pile Width (m): 91 Pile Height (m): 21 Surface Area (m^2) 16,754

Meteorological Period	Friction Velocity (m/s)	Emission Potential (g/m^2)	Affected Pile Surface Area (pct)	Affected Area (m^2)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
14	1.30	6.38	4	670.2	1.18	0.0024
30	1.13	0.26	4	670.2	0.05	<0.0001
37	1.33	7.81	4	670.2	1.44	0.0029
65	1.48	16.52	14	2,345.5	10.68	0.0214
65	1.80	43.82	4	670.2	8.09	0.0162
77	1.30	6.38	4	670.2	1.18	0.0024
90	1.33	7.81	4	670.2	1.44	0.0029
			Maximum Per Period		18.77	N/A
			Total		N/A	0.0480

SOURCES OF INPUT DATA

Parameter	Data Source
Threshold Friction Velocity (m/s)	Uncrusted coal pile, Table 13.2.5–2., AP–42, January 1995.
Control Efficiency (pct)	Table 3.2.17–2, Workbook on Estimation and Dispersion Modeling for Fugitive Particulate Sources, UARG, September 1991.
Fuel Pile Dimensions (m)	Estimated: ECT, 1997.
Pile Surface Area (m^2)	Calculated: ECT, 1997.
Meteorological Periods	1986 NWS data, processed per AP–42, ECT, 1997.
Friction Velocity (m/s)	Equation, Section 13.2.5, AP–42, January 1995.
Potential Emission (g/m^2)	Equation, Section 13.2.5, AP–42, January 1995.
Affected Pile Surface Area (pct)	Table 13.2.5–3., Section 13.2.5, AP–42, January 1995.
Affected Area	Calculated: ECT, 1997.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/16/97
Evaluated by:	A. Trbovich	Date:	09/16/97
Data Entered by:	A. Trbovich	Date:	09/16/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–023b

EMISSION SOURCE TYPE

STORAGE PILE WINDBLOWN FUGITIVE DUST EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Storage – West Portion of South Storage Pile

Emission Control Method(s)/ID No.(s): Application of Chemical Dust Suppressant

Emission Point ID: FH–023b

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Estimates of fugitive PM were made using procedures contained in AP–42, Section 13.2.5, Industrial Wind Erosion.

Source: Section 13.2.5 – Industrial Wind Erosion, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Threshold Friction Velocity: 1.12 m/s

Control Efficiency: 50 pct

Pile Length (m): 140 Pile Width (m): 125 Pile Height (m): 21 Surface Area (m^2) 18,855

Meteorological Period	Friction Velocity (m/s)	Emission Potential (g/m^2)	Affected Pile Surface Area (pct)	Affected Area (m^2)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
14	1.30	6.38	4	754.2	1.33	0.0027
30	1.13	0.26	4	754.2	0.05	0.0001
37	1.33	7.81	4	754.2	1.62	0.0032
65	1.48	16.52	14	2,639.6	12.01	0.0240
65	1.80	43.82	4	754.2	9.11	0.0182
77	1.30	6.38	4	754.2	1.33	0.0027
90	1.33	7.81	4	754.2	1.62	0.0032
			Maximum Per Period		21.12	N/A
			Total		N/A	0.0541

SOURCES OF INPUT DATA

Parameter	Data Source
Threshold Friction Velocity (m/s)	Uncrusted coal pile, Table 13.2.5–2., AP–42, January 1995.
Control Efficiency (pct)	Table 3.2.17–2, Workbook on Estimation and Dispersion Modeling for Fugitive Particulate Sources, UARG, September 1991.
Fuel Pile Dimensions (m)	Estimated: ECT, 1997.
Pile Surface Area (m^2)	Calculated: ECT, 1997.
Meteorological Periods	1986 NWS data, processed per AP–42, ECT, 1997.
Friction Velocity (m/s)	Equation, Section 13.2.5, AP–42, January 1995.
Potential Emission (g/m^2)	Equation, Section 13.2.5, AP–42, January 1995.
Affected Pile Surface Area (pct)	Table 13.2.5–3., Section 13.2.5, AP–42, January 1995.
Affected Area	Calculated: ECT, 1997.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/16/97
Evaluated by:	A. Trbovich	Date:	09/16/97
Data Entered by:	A. Trbovich	Date:	09/16/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–024

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | **Figure:**

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Underground Reclaim System to Conveyor F1

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant

Emission Point ID: FH–024 | **Transfer Point ID(s):**

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	552	882,681	6.5	85.0	0.10	0.08

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Actual PM emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel reclaiming was assumed to be equally divided among the reclaimers F1, F2, and F4, or 882,681 tons per reclaimer.

Actual short–term emissions based on reclaimers F1, F2, and F4 operating simultaneously at 533 tph, each.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/16/97
Evaluated by:	A. Trbovich	Date:	09/16/97
Data Entered by:	A. Trbovich	Date:	09/16/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–025

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | **Figure:**

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Underground Reclaim System to Conveyor F4

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant

Emission Point ID: FH–025 | **Transfer Point ID(s):**

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	553	882,681	6.5	85.0	0.10	0.08

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Actual PM emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel reclaiming was assumed to be equally divided among the reclaimers F1, F2, and F4, or 882,681 tons per reclaimer.

Actual short–term emissions based on reclaimers F1, F2, and F4 operating simultaneously at 533 tph, each.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/16/97
Evaluated by:	A. Trbovich	Date:	09/16/97
Data Entered by:	A. Trbovich	Date:	09/16/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–027

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | **Figure:**

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Underground Reclaim System to Conveyor F2

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant

Emission Point ID: FH–027 | **Transfer Point ID(s):**

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed	Actual Quantity Transferred		Material Moisture Content	Control Efficiency	Actual PM Emission Rates	
(mph)	(ton/hr)	(ton/yr)	(pct)	(pct)	(lb/hr)	(tpy)
8.6	553	882,681	6.5	85.0	0.10	0.08

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Actual PM emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel reclaiming was assumed to be equally divided among the reclaimers F1, F2, and F4, or 882,681 tons per reclaimer.

Actual short–term emissions based on reclaimers F1, F2, and F4 operating simultaneously at 533 tph, each.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/16/97
Evaluated by:	A. Trbovich	Date:	09/16/97
Data Entered by:	A. Trbovich	Date:	09/16/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–028

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor F1 to Conveyor G1/G2

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant Sprays

Emission Point ID: FH–028

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	553	882,681	6.5	90.0	0.07	0.05

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Actual PM emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel reclaiming was assumed to be equally divided among the reclaimers F1, F2, and F4, or 882,681 tons per reclaimer.

Actual short–term emissions based on reclaimers F1, F2, and F4 operating simultaneously at 533 tph, each.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–029

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | **Figure:**

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor F4 to Conveyor G1/G2

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant Sprays

Emission Point ID: FH–029 | **Transfer Point ID(s):**

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed	Actual Quantity Transferred		Material Moisture Content	Control Efficiency	Actual PM Emission Rates	
(mph)	(ton/hr)	(ton/yr)	(pct)	(pct)	(lb/hr)	(tpy)
8.6	553	882,681	6.5	90.0	0.07	0.05

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Actual PM emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel reclaiming was assumed to be equally divided among the reclaimers F1, F2, and F4, or 882,681 tons per reclaimer.

Actual short–term emissions based on reclaimers F1, F2, and F4 operating simultaneously at 533 tph, each.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–031

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor F2 to Conveyor G1/G2

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant Sprays

Emission Point ID: FH–031

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	553	882,681	6.5	90.0	0.07	0.05

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Actual PM emissions based on 2,648,044 tpy of fuel used. Actual fuel used is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel reclaiming was assumed to be equally divided among relcaimers F1, F2, and F4, or 882,681 tons per reclaimer.

Actual short–term emissions based on reclaimers F1, F2, and F4 operating simultaneously at 533 tph, each.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–032

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor G1 to Hammermill Crusher 1

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant

Emission Point ID: FH–032

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed	Actual Quantity Transferred		Material Moisture Content	Control Efficiency	Actual PM Emission Rates	
(mph)	(ton/hr)	(ton/yr)	(pct)	(pct)	(lb/hr)	(tpy)
8.6	800	1,324,022	6.5	90.0	0.10	0.08

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Actual PM emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel reclaiming was assumed to be equally divided between conveyors G1 and G2, or 1,324,022 tons per conveyor.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–033

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyor G2 to Hammermill Crusher 2

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant

Emission Point ID: FH–033

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	800	1,324,022	6.5	90.0	0.10	0.08

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Actual PM emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel reclaiming was assumed to be equally divided between conveyors G1 and G2, or 1,324,022 tons per conveyor.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–034

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES | Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Hammermill Crusher 1 to Conveyor H1

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant Sprays

Emission Point ID: FH–034 | Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed	Actual Quantity Transferred		Material Moisture Content	Control Efficiency	Actual PM Emission Rates	
(mph)	(ton/hr)	(ton/yr)	(pct)	(pct)	(lb/hr)	(tpy)
8.6	800	1,324,022	6.5	90.0	0.10	0.08

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Actual PM emissions based on 2,648,044 tpy of fuel used. Actual fuel use is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel reclaiming was assumed to be equally divided between conveyors H1 and H2, or 1,324,022 tons per conveyor.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–035

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Hammermill Crusher 2 to Conveyor H2

Emission Control Method(s)/ID No.(s): Enclosure With Dust Suppressant

Emission Point ID: FH–035

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.6	800	1,324,022	6.5	90.0	0.10	0.08

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Tampa, FL, Climate of the States, Third Edition, 1985.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Table 3.2.17–2, Workbook on Estimation of Emissions and Dispersion Modeling of Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Actual PM emissions based on 2,648,044 tpy of fuel used. Actual fuel used is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

Actual fuel reclaiming was assumed to be equally divided between conveyors H1 and H2, or 1,324,022 tons per conveyor.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–036–
FH–041

EMISSION SOURCE TYPE

MATERIAL TRANSFER – FUGITIVE EMISSION SOURCES

Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description: Fuel Handling – Conveyors H1/H2 to Conveyors J1/J2, Conveyors J1/J2 to Bunkers 1–6

Emission Control Method(s)/ID No.(s): Rotoclones 1 through 6

Emission Point ID: FH–036 through FH–041

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 0.0032 x material transferred (ton/hr) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100)

Emission (tpy) = 0.0032 x material transferred (tpy) x [(average wind speed (mph)/5)$^{1.3}$ / moisture content (pct)/2)$^{1.4}$] x (100–control[pct]/100) x (1/2,000)

Source: Section 13.2.4 – Aggregate Handling and Storage Piles, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed (mph)	Actual Quantity Transferred (ton/hr)	Actual Quantity Transferred (ton/yr)	Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
2.8	1,600	2,648,044	6.5	75.0	0.12	0.10

SOURCES OF INPUT DATA

Parameter	Data Source
Mean Wind Speed	Typical Indraft Velocity for Coal Bunkers, ECT 1994.
Actual Quantity Transferred	TEC, 1997.
Material Moisture Content	Average fuel moisture content; TEC, 1994.
Control Efficiency	Control Equipment Vendor Data AAF, 1960.

NOTES AND OBSERVATIONS

Actual PM emissions based on 2,648,044 tpy of fuel used. Actual fuel used is the average of the 1995 and 1996 actual fuel used, 2,528,334 tons and 2,767,753 tons, respectively.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	08/07/97
Evaluated by:	A. Trbovich	Date:	08/07/97
Data Entered by:	A. Trbovich	Date:	08/07/97
Reviewed by:		Date:	

EMISSION INVENTORY WORKSHEET

Tampa Electric Company – F.J. Gannon Station

FH–044

EMISSION SOURCE TYPE

VEHICULAR TRAFFIC ON UNPAVED ROADS – FUGITIVE EMISSION SOURCES | Figure:

FACILITY AND SOURCE DESCRIPTION

Emission Source Description:	Fuel Handling – Storage Pile Maintenance
Emission Control Method(s)/ID No.(s):	Dust Suppressant Sprays
Emission Point ID:	FH–044

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = 5.9 x (s/12) x (S/30) x $(W/3)^{0.7}$ x $(w/4)^{0.5}$ x ((365–p)/365) x vehicle miles per hour (VMT/hr) x (100–control[pct]/100)

Emission (ton/yr) = 5.9 x (s/12) x (S/30) x $(W/3)^{0.7}$ x $(w/4)^{0.5}$ x ((365–p)/365) x vehicle miles per year (VMT/yr) x (1 ton/ 2,000 lb) x (100–control[pct]/100)

Source: Section 13.2.2 – Unpaved Roads, AP–42, Fifth Edition, January 1995.

INPUT DATA AND EMISSIONS CALCULATIONS

Operating Hours: 16 Hrs/Day 7 Days/Wk 5,824 Hrs/Yr

s Silt Content (pct)	S Vehicle Speed (mph)	W Vehicle Weight (ton)	w No. of Wheels	p Rainfall Days	Vehicle Miles Travelled (VMT/hr)	Vehicle Miles Travelled (VMT/yr)	Control Efficiency (pct)	Actual PM Emission Rates (lb/hr)	Actual PM Emission Rates (tpy)
8.4	2.5	48	6	107	10.0	58,240	50.0	10.38	30.21

SOURCES OF INPUT DATA

Parameter	Data Source
Operating Hours	ECT, 1997. Estimated.
Silt Content, s	Table 13.2.2–1, Section 13.2.2, AP–42, January 1995.
Vehicle Speed, S	TEC, 1997. Average value.
Vehicle Weight, W	TEC, 1997. Average value.
No. of Wheels	TEC, 1997. Average value.
Rainfall Days	Climate of the States, Third Edition, 1985. Data for Tampa, FL.
Vehicle Miles Traveled	ECT, 1997. Estimated.
Control Efficiency	Table 3.2.15–2, Workbook on Estimation of Emissions and Dispersion Modeling for Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Estimate of vehicle miles traveled based on the use of four bulldozers on the storage piles.

DATA CONTROL

Data Collected by:	A. Trbovich	Date:	09/16/97
Evaluated by:	A. Trbovich	Date:	09/16/97
Data Entered by:	A. Trbovich	Date:	09/16/97
Reviewed by:		Date:	

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PS Form **3800**, April 1995

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- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write *"Return Receipt Requested"* on the mailpiece below the article number.
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Consult postmaster for fee.

3. Article Addressed to:
Mr. Doug Neeley, Chief
Air + Radiation Tech. Br.
U S EPA - Region IV
61 Forsyth St.
Atlanta, GA
30303-8969

4a. Article Number P 265 659 408

4b. Service Type
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Department of Environmental Protection
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Tallahassee, Florida 32399-2400

Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

August 17, 1998

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. R. Douglas Neeley, Chief
Air and Radiation Technology Branch
U.S. Environmental Protection Agency, Region IV
Atlanta Federal Center
61 Forsyth Street
Atlanta, Georgia 30303-8960

Re: Tampa Electric Company Gannon Station
Pollution Control Project Applicability Determination

Dear Mr. Neeley:

The Florida Department of Environmental Protection has made a Preliminary Determination that use of low Btu, high moisture coal constitutes a Pollution Control Project (PCP) for nitrogen oxides (NO_X) emissions control at the Tampa Electric Company (TEC) Gannon Station, Hillsborough County. The determination is in accordance with the PCP definition and rules at 40CFR52.21(b)(32) and 40CFR52.21(b)(2)(iii)(h).

The TEC project involves using low Btu, high moisture fuels such as Powder River Basin and Indonesian coal. TEC has demonstrated that its cyclone and wet bottom units can approach the Phase II NO_X limits required by the Acid Rain Rules using these types of fuels together with various combustion modifications and projects to resolve problems inherent in switches to different types of coals and coal blends.

Because the new coal has a heating value of roughly 9,000 Btu versus 12,000 for the historical coal, TEC has requested relaxation of the 2.85 million ton per year coalyard throughput limit to 3.305 million tons per year. Various projects associated with the coalyard will be treated as activities in support of a PCP. We will impose a "heat throughput" limit that will insure that the boilers served by the coalyard are not inadvertently "debottlenecked." This effectively limits the plant to approximately 66 percent annual availability.

The details are in the attached Preliminary Determination. We will provide you with a copy of the public notice when it is prepared. If you have any questions, please call me or Al Linero at 850/488-0114.

Sincerely,

C. H. Fancy, Chief
Bureau of Air Regulation

CHF/aal

Attachment

cc: Charles Black, V.P., TEC
Bill Thomas, DEP
Ivan Choronenko, EPCHC

PRELIMINARY DETERMINATION
POLLUTION CONTROL PROJECT AND
PSD APPLICABILITY REVIEW
TAMPA ELECTRIC GANNON COAL PROJECT

BACKGROUND

Tampa Electric Company (TEC) operates the Gannon power plant and coal yard in Tampa, Hillsborough County. In June, 1997, TEC applied to increase the permitted coal throughput at the coal yard from 2.85 million tons per year (mmTPY) to 3.77 mmTPY. An addendum submitted in June, 1998 revised the throughput requirement to 3.305 mmTPY. The reason for the increase is that TEC has been progressively using more high moisture/low heat content coals to comply with nitrogen oxides (NO_X) requirements for Phase II units pursuant to the Title IV Acid Rain requirements of the Clean Air Act.

Unless a throughput increase is permitted, use of the lower heat content coals will limit the electrical power production of the Gannon Plant compared to use of high heat content coal. Historically this has not been a problem since the coalyard throughput limit was compatible with use of high heat content fuel and demand. However, with growing electrical demand, lower state-wide electrical reserve capacity, and use of low heat content coal, the throughput limit has become an actual restriction on the overall plant availability. This maximum availability of the plant is approximately 66 percent when burning historical coals, but would be reduced to 57 percent if high moisture, low Btu coals are used while the mass throughput limit is maintained.

TEC maintains that "the coalyard and steam generating units are separate entities with respect to existing operating permits and that the fuel yard permit conditions apply only to the fuel yard, not to the entire facility." Under this view, the coalyard throughput increase would be permitted separately without regard to any emissions changes that might occur from the boilers. Without conceding that the coalyard and steam generating unit permit conditions are mutually applicable, TEC has presented information in subsequent submittals in support of its contention that the project is exempt from the rules for the Prevention of Significant Deterioration (PSD) as a Pollution Control Project."

REGULATIONS

Presuming that the coalyard and the steam units comprise a single facility, an increase in coalyard throughput would result in emissions increases of at least nitrogen oxides (NO_X), sulfur dioxide (SO_2), and particulate matter (PM/PM_{10}). There could also be increases in carbon monoxide (CO) and sulfuric acid mist (SAM).

The change in the coalyard throughput limit is a relaxation of a federally enforceable limitation on the capacity of the facility and is therefore a modification. As such, the PSD requirements in Rule 62-212.400, F.A.C. may apply as described in Rule 62-212.400(2)(g), F.A.C. Modifications to Major Facilities are those that result in a *significant net emissions increase* as described in Rule 62-212.400(2)(d)4.a(ii) and 62-212.400(2), F.A.C.

Per Rule 62-212.400(5)(c), F.A.C.:

> *The proposed facility or modification shall apply Best Available Control Technology (BACT) for each pollutant subject to preconstruction review requirements as set forth in Rule 62-212.400(2)(f), F.A.C.*

It is obvious that the definitions and applicability of facility, modification, and any exemptions are of key importance in this review.

A pollution control project (PCP) is defined at 40CFR52.21(b)(32) as:

> ***Any activity or project** undertaken at an existing electric steam generating unit **for purposes of reducing emissions from such unit**. Such activities and projects are limited to:*
>
> *(I) The **installation of** conventional or innovative pollution control technology, including but not limited to **advanced flue gas desulfurization**, sorbent injection for **sulfur dioxide control and nitrogen oxides** control and electrostatic precipitators;*
>
> *(2) **An activity or project to accommodate switching to a fuel which is less polluting** than the fuel in use prior to the activity or project, including, **but not limited to** natural gas or coal reburning, or the co-firing of natural gas and other fuel **for the purpose of controlling emissions**;*
>
> *(3) A permanent clean coal technology demonstration project conducted under title II, Section 101(d) of the Further Continuing Appropriations Act of 1985.....; or*
>
> *(4) A permanent clean coal technology demonstration project that constitutes a repowering project.*

The above definition is not specifically listed in the State Rules in Chapter 62, F.A.C. However it is obvious that it is the intent of the State to abide by the Federal definition. Per Rule 62-212.400(2)(a)2., F.A.C., Pollution Control Project Exemption:

> *A **pollution control project** that is being added, replaced, or used at an existing electric utility steam generating unit and that meets the requirements of **40CFR52.21(b)(2)(iii)(h) shall not be subject** to the preconstruction requirements of this rule.*

According to **40CFR52.21(b)(2)(iii)(h)**, one of the exemptions from review for PSD is:

> *The addition, replacement or use of a **pollution control project** at an existing electric utility steam generating unit, **unless the Administrator determines such** addition, replacement, or use **renders the unit less environmentally beneficial**, or except (1) When the Administrator has reason to believe that the pollution control project would result in a significant net increase in representative actual annual emissions of any criteria pollutant over levels used for that source in the most recent air quality impact analysis in the area conducted for the purpose of title I if any, and (2) The **Administrator determines the increase will cause or contribute to a violation of any national ambient air quality standard or PSD increment**, or visibility limitation.*

A fuel switch is not actually included in the definition of PCP nor is it listed as an activity in support of a PCP. However, it is not excluded. Furthermore, according to the EPA rule analysis at FR Vol. 57, No. 140, Pages 32320-32321:

> *"Thus EPA is today adopting revisions to its PSD and nonattainment regulations for the addition, replacement or use at an electric steam generating unit of any system or device whose* ***primary function is the reduction of pollutants*** *(including the switching to a less-polluting fuel* ***where the primary purpose of the switch is the reduction of air pollutants).***"

If it is established that the primary purpose of the switch is to reduce emissions, then it can be evaluated for qualification as a PCP. Even if there is an increase in a PSD pollutant associated with the project, it is not necessarily precluded from consideration as a PCP. Per the EPA analysis:

> *"Several commentors pointed out that a pollution control project that reduces one pollutant should not be allowed to increase emissions of another pollutant if that increase will cause or exacerbate a different pollution problem..... Although* ***a pollution control project could theoretically cause a small collateral increase in some emissions, it will substantially reduce emissions of other pollutants****. In recognition of this,* ***the rule provides for a case-by-case assessment*** *of the pollution control project's net emissions and overall impact on the environment."*

Therefore, the criteria which the Department must follow are clear. **The collateral increase in any PSD pollutant should be small and the decrease in one or more PSD pollutants should be substantial. The increases in any pollutant should not cause or contribute to violation of an ambient air quality standard or PSD increment.**

DESCRIPTION OF PROJECT

The project is the **use of Powder River Basin (PRB) coal** in Units 1-4. According to TEC, there has been a marked reduction in NO_X emissions from using PRB coal at Units 1-4. This has resulted in emissions reductions approaching the "Phase II" NO_X limit of 0.86 pounds per million Btu heat input (lb/mmBtu) at Units 3 and 4 without physical modification of the wet bottom cyclone units. TEC has also experimented with high moisture/low heat content Indonesian coal. For reference following is a comparison of various coals used at the Gannon Plant.

Table 1 - Comparison of 1994 TEC Gannon Coal with 1997 Indonesian and PRB Coals

	Gannon Coal[1]	Indonesian Coal[2]	PRB Coal[3]
Sulfur (%)	1.13	0.35	0.43
Heating Value (Btu/lb)	12,773	9,614	8,720
Ash (%)	6.99	1.44	5.29
Moisture (%)	<10	>25	31[4]

The choice of dates and data for comparison purposes was made by the Department and not TEC. In 1993, TEC imported no Indonesian coal. Receipts of Indonesian coal were 0.147, 0.349, 0.808, and 0.741 mmTPY for 1994, 95, 96, and 97, respectively. In 1994 use of PRB coal by TEC was insignificant. In 1996 and 1997 receipts of PRB coal by TEC (presumably for use at Gannon) were 0.591 and 0.971 mmTPY respectively. The above data indicate that:

1. Use of PRB and Indonesian coals is a recent and increasing practice by TEC.
2. PRB and Indonesian coals have lower sulfur content and lower ash content indicating at least an initial potential for reductions of some pollutants.
3. PRB and Indonesian coals have lower heat content indicating that it is necessary to use more of these coals to achieve the same heat input or electrical power production as achieved with lesser quantities of historical coal used at TEC Gannon.
4. PRB and Indonesian coals have higher moisture content. If NO_X emissions are reduced by the higher moisture content (and presumably some adjustments in combustion practices), then PRB and Indonesian coals have a potential for reductions in NO_X emissions.

EFFECT OF HIGH MOISTURE COAL ON NO_X EMISSIONS

Following the establishment of the above criteria, the Department requested on August 10, 1998 that TEC provide reasonable assurance that high moisture coals do in fact result in NO_X reductions.[5] The Department specifically requested the Sargent & Lundy[6] study and any other information that TEC has to indicate that the actual reason high moisture coal will be used is to reduce NO_X emissions.

TEC promptly provided the Sargent & Lundy Report on August 11 as well as a report submitted to the Public Service Commission (PSC) on NO_X controls[7], a Memorandum of Understanding (MOU) with Hillsborough County on NO_X reductions[8], and an internal summary of NO_X compliance activities[9].

According to the 1998 Compliance Activities document:

> *TEC's cyclone units have shown a reduction in NO_X close to the rule requirements as a result of burning high moisture western coals. However, there are significant penalties as a result and TEC is continuing to investigate other reasonable options.....To continually use this fuel will require changes in the coal preparation to reduce operating difficulties. This work will be complete in 1999.*

According to the MOU:

> *Whereas the Tampa Electric Company has already taken the initiative to reduce the nitrogen oxide emissions from some of the individual affected units by more than 20 percent, resulting in an overall reduction of over 10,000 tons from the 1995 levels; Whereas the **EPC believes** the modifications and **fuel switching** proposed by the Tampa Electric Company **will address** the secondary environmental impacts associated with **nitrogen oxides emissions** in the Tampa Bay area.....*

Regarding Gannon 1-4, the May 1997 document submitted to the PSC stated:

A blend of Powder River Basin (PRB) and Western Kentucky coal has been used in the cyclone units. The PRB is a low BTU, high moisture, low sulfur coal. The original blend of 75% PRB has been reduced to 70% in order to minimize the problems associated with this fuel. Problems associated with this coal blend include: load restrictions due to low BTU value of the PRB, high fly ash LOI [loss on ignition], slag tank problems (tapping and explosions), fuel switching problems and fires due to spontaneous combustion of the PRB. NO_X was reduced to the 0.8-0.95 lb./MMBTU for a short period of time. It has not been demonstrated that a higher percentage of PRB in the blend will further lower the NO_X emissions rate.

A series of solutions to the problems were described. Of note is one that clearly associates the purpose of the crusher/grinder project to the problems caused by the use of PRB coal. If the use of high moisture coal is a PCP, then the crusher/grinder project can be a project in support of a PCP. Specifically the document states:

Fly ash LOI appears to be controllable by improving the grind of the coal. To meet the required grind, an increase in coalfield crusher operation and maintenance of up to $600,000 per year may be necessary along with probable crusher upgrades which could cost up to $2,500,000.

The summary of conclusions in the document to the PSC states that:

TEC has concluded that combustion modification of its Riley Turbo Furnace boilers (Gannon Units 5 and 6) can achieve significant reductions in NO_X emissions but only at the expense of incurring significant capital and O&M costs ..... Furthermore, TEC has concluded that ***significant NO_X emission*** *reductions on its cyclone boilers(Gannon Units 1-4) can only be reasonably obtained through* ***fuel switching to a low btu, high moisture fuel*** *with the resulting expense and risk of sole sourcing these units fuel supply.*

An independent corroboration of the possible reduction of NO_X by use of PRB coal at the Gannon Plant exists in an inspection report.[10] The letter states:

..... ***NO_X emissions*** *from two cyclone units,* ***at or below*** *the proposed EPA limits of 0.94 lb/mmBtu (operation was near full load)..... During my visit I noted that these units had recently* ***switched to Powder River Basin coal.*** *During a visit on August 16, a representative from Hillsborough County noted that NO_X emissions from the two wet bottom turbo units [Units 5 and 6] at the Gannon station were below the proposed levels of 0.86 lb/mmBtu.....Can you confirm if fuel switching for SO_2 allowances have a co-benefit of reducing NO_X?*

It is clear from the record that:

1. TEC has a recent history of using the high moisture fuels
2. NO_X reduction through use of high moisture, low Btu fuels has been demonstrated.
3. The use of high moisture, low Btu fuels is in fact the primary strategy employed by TEC at Gannon Units 3 and 4 to comply with the requirements of the Phase II Rules for NO_X control pursuant to Title IV, Acid Rain, Clean Air Act.
4. Additional projects are needed to facilitate the switch to low Btu, high moisture coals.

OTHER CONSIDERATIONS

Based on the application and initial information submitted by TEC, the EPCHC and some Department staff expressed various concerns about the ability of the project to qualify as a PCP. These concerns are:

1. Significant collateral increases of SO_2.[11]
2. Possible impacts on ambient SO_2 concentrations.
3. The possibility that increased annual power generation from the Gannon Plant is the actual reason that greater throughput is needed.
4. The possibility that use of PRB coal is being implemented for economic rather than environmental reasons.
5. Lack of detailed analysis on the collateral increase or decreases of particulate matter, fluorides, and other PSD pollutants.
6. Doubts that it is the use of high moisture coals that causes the lower NO_X emissions.

TEC fully disclosed in its final information submittal that SO_2 emissions may indeed increase. However, it is clear that on balance, the use of PRB coal will actually lower SO2 emissions. TEC stated that the increase is related to the use of a scrubber at Big Bend units 1 and 2 will result in substantial reductions in SO_2 emissions at Big Bend and on a corporate-wide basis as required by Title IV of the Clean Air Act. TEC's reduction at Big Bend will result in available SO_2 allowances, some of which might be sold or possibly used at the Gannon Plant. The emissions are not collateral with the use of high moisture PRB coal, but rather incidental and mostly unrelated.

Any negative impacts on ambient SO_2 concentrations are not related to the use of PRB coal. The subject is being reviewed under Title V permitting. The Department and TEC are working out ways to insure that emission limits are set in the Title V permit to avoid exeedances of the Florida Ambient Air Quality Standard for SO_2.

The electrical generation capacity in the State has fallen below the minimum reserve requirements. Usage of quite a number of plants and even peaking units has increased. Increases in generation due to system-wide growth in demand are normally left out of the calculations for determining increases and decreases in emissions due to modifications at existing power plants. TEC actually left in the future emissions increases attributable to increased growth in demand as well as the unrelated increases due to the scrubber project at Big Bend 1 and 2.

Obviously TEC will ultimately be limited by the coalyard throughput whether it uses high Btu or low Btu fuel. However the use of the low Btu fuel is for reduction of emissions. A compensating increase in allowable coal throughput is a logical way to encourage the use of a less polluting type of coal, while insuring that it does not inadvertently "debottleneck" the rest of the plant.

The Department has seen no evidence that the motivation for using PRB coal is to stimulate demand. Based on the DOE data, the cost of PRB coal delivered to the company's Davant, Louisiana Transfer Station is about the same as other fuels used by TEC. When forwarded to Florida, the cost could be greater than the other fuels because of the low Btu value. As documented above, there is actually a risk related to sole-sourcing the fuel for the Gannon Units using PRB coal. Additionally a host of potential problems were identified by the company that are being progressively solved. The main economic incentive appears to be minimization of the cost to achieve the required NO_X reductions. There appears to be no appreciable economic advantage

to using PRB coal that would result in increased unit availability.

TEC submitted estimates on the collateral increases and decreases in particulate emissions. These appear small and controllable. The low sulfur in PRB coal can actually reduce electrostatic precipitator performance. TEC has sulfur trioxide injection systems that can be adjusted to correct for drops in particulate collection efficiency. The Department did not specifically require TEC to document possible small collateral increases and decreases in other PSD pollutants. The changes are difficult to quantify and there is no reason to expect any significant differences attributable to the use of the PRB coal.

The reduction in NO_X at Gannon Units 1-4 has clearly been documented and is attributable to the use of low moisture coals such as PRB coal. Obviously some relatively inexpensive associated fuel system, ash handling and boiler modifications, as well as combustion optimization contribute to the reduction.

Following are the required emissions reductions that TEC must achieve from the units actually covered by the NO_X Acid Rain requirements:

Table 2 - Comparison of NO_X Emissions From Gannon Units 3-6 Before and After Control Projects and Fuel Use Strategies (pounds per million Btu)

	1995	Future
Gannon Unit 3	1.29	0.86
Gannon Unit 4	1.34	0.86
Gannon Unit 5	0.95	0.84
Gannon Unit 6	1.15	0.84

In its application, TEC assumed that Units 3 and 4 would be required to meet 0.95 pounds of NO_X per million Btu (lb/mmBtu) while Units 5 and 6 will have to meet 0.85. A recent Court decision upheld EPA's final determination on the emissions allowed for these units. Therefore TEC will actually have to achieve somewhat greater NO_X reductions than given in the application. Though not regulated by Phase II Rules, Units 1 and 2 will also achieve some NO_X emissions reductions due to the use of high moisture, low Btu fuel.

CONCLUSION

Based on the foregoing analysis, the Department's Preliminary Determination is that TEC's use of high moisture, low Btu coals such as Indonesian and Powder River Basin coals constitutes a Pollution Control Project per Department and EPA regulations. Additionally the coal yard modifications and the installation of new crusher/grinders constitute projects and activities to accommodate switching to a fuel that is less polluting than the fuel in use prior to the project.

To insure that the increase in permitted coal throughput does not result in emissions increases, limits will be set for "total annual heating value throughput." In this manner, the increase in physical throughput will only compensate for the decrease in fuel heating value. Assuming a conservative heating value of 12,250 Btu per pound from the higher Btu coals exclusively used before 1996, the Department estimates that the required heat throughput is 6.98×10^7 mmBTU per year. This limit should be incorporated into the coalyard permit or adjusted in accordance with more detailed information submitted by TEC. For reference, according to the EPA's Acid Rain

database, the heat input to the Gannon Plant in 1995 and 1996 was 6.69 and 6.89 x 10^7 mmBtu respectively.[12]

The Southwest District is directed to process the permit for the coal yard modifications. Although the actual coalyard projects are to accommodate the use of a PCP, emissions should still be minimized. TEC should also describe to the District its plans to minimize any collateral particulate and carbon monoxide increases from the boilers. This Preliminary Determination may be public noticed in conjunction with the coalyard permit Intent or separately at an earlier date. The details of the notice may be finalized between TEC and the District.

REFERENCES

1 Department of Energy. Receipts and Average Cost of Coal by Type, Electric Utility, and Plant (TEC Gannon), 1994

2 Department of Energy. Receipts, Quality, and Average Delivered Cost of Imported Coal (TEC Davant Transfer - Indonesian Coal), 1997.

3 Department of Energy. Receipts of Western Region Coal (TEC), 1997.

4 Babcock and Wilcox Analysis of Campbell County, Wyoming Subbituminous C.

5 Telecon. Linero, A.A., DEP with Watley, T.J., TEC. August 10, 1998. Need for substantiation of properties of high moisture coals with respect to NO_X controls.

6 Carnot/Sargent & Lundy. "Nitrogen Oxide Limitation Study prepared for Tampa Electric company." March 15, 1996.

7 Tampa Electric Company. "Evaluation of NO_X Controls for Tampa Electric Company's Group II Wet Bottom and Cyclone Boilers." May, 1997.

8 TEC and EPCHC. "Memorandum of Understanding Nitrogen Oxides Emissions Rate Reductions." October 29, 1997.

9 TEC. "Tampa Electric Company NOX Compliance Activities." Undated.

10 Letter from Costello, M., DEP to Ho, P., TEC. Request for Information. October 9, 1996.

11 Memorandum from Anderson, L., DEP to Linero, A., DEP. TEC's Coal Modification Project. August 11, 1998.

12 www.epa.gov/acidrain/ardhome.html. Data summarized in Tables accompanying Reference 11 above.

MEMORANDUM

TO: Al Linero, P.E.

FROM: Lennon Anderson

DATE: August 11, 1998

SUBJECT: TEC's Coal Modification Project

This memo is being provided as requested on August 4, 1998. Tables 1 through 12 address the Tampa Electric (TEC) F.J. Gannon Station's Coal Yard Modification Project. The objective of the study is to evaluate SO_2 and NO_x emissions based on an increase in the coalyard's annual throughput due to the switching of the coal to a low Btu heat content coal known as Powder River Basin (PRB) coal.

At the current permitted feed rate for the boilers, the boilers can burn 4,299,408 tons of coal annually with a corresponding heat input of 105,741,960 MMBtu/yr. With the coalyard limited to a throughput of 2.85 million tons of coal, the facility is therefore limited to 66.3 percent. Moreover, the SO_2 emissions rate for each boiler is 2.4 lbs/MMBtu. From all six boilers, the total annual SO_2 emissions is 126,890 tons. However, all six boilers are collectively limited to 92,856 tons/yr. Please see Table 1.

According to EPA's database, Tables 2 through 5 show that the heat input to the plant from 1985 to 1996 increased, which is accompanied with an increase in SO_2 emissions and an increase in coal usage. In 1996, the coal usage was 47,711 tons shy of the 2.85 million tons permitted.

Table 6 through 10, however, are based on data submitted by TEC to the Department in its Annual Operating Report (AOR). The years examined were, 1990 and 1994-1997. Furthermore, TEC began using PRB coal in 1996. As a result, Tables 9 and 10 show that NO_x emissions decreased (18,034 tons) while SO_2 emissions increased (6,759 tons).

Tables 11 and 12 show the SO_2 and NO_x emissions at the coalyard's current throughput limit (2.85 million tons) and proposed throughput limit (3.30 million tons). With TEC's traditional, standard coal, the SO_2 and NO_x emissions are estimated to be 63,212 and 47,357 tons, respectively. For the proposed project, however, the annual projected SO_2 and NO_x emissions are 65,253 and 31,852 tons, respectively. Clearly, there

is a reduction in NO_x emissions, 15,505 tons; but, there is an increase in SO_2 emissions, 2,041 tons which is greater than the significant emissions rate of 40 TPY.

Table 1. SO2 Potential Emissions

Unit No.	Coal Feed Rate (tons/hr)	Heat Input (MMBtu/hr)	Heat Input MMBtu/yr	Calorific Value (Btu/lb)	SO2 based on 2.4 lbs/MMBtu (tons/yr)	Max. Coal usage (tons/yr)
1	50	1,257	11,011,320	12,570	13,213.6	438,000
2	51	1,257	11,011,320	12,324	13,213.6	446,760
3	65	1,599	14,007,240	12,300	16,808.7	569,400
4	80	1,876	16,433,760	11,725	19,720.5	700,800
5	93.4	2,284	20,007,840	12,227	24,009.4	818,184
6	151.4	3,798	33,270,480	12,543	39,924.6	1,326,264
Totals or Average	490.8	12,071	105,741,960	12,281	126,890.4	4,299,408

Collectively, the SO2 emissions for all six units, based on 10.6 tons/hr, is 92,856 tons/yr.

Table 2. SO2 Actual Emissions (1985) (epa)

Unit No.	Heat Input (MMBtu)	SO2 (tons)	Operating at (Percent)	Estimated Coal Usage (tons/yr)
1	2,169,220	1,613	19.7	86,285.6
2	4,262,360	3,628	38.7	172,935.8
3	7,803,180	6,998	55.7	317,202.4
4	10,095,310	9,009	61.4	430,503.6
5	11,420,980	10,246	57.1	467,040.1
6	18,684,710	16,385	56.2	744,830.2
Totals or Average	54,435,760	47,879	51.5	2,218,797.8

Table 3. SO2 Actual Emissions (1990) (epa)

Unit No.	Heat Input (MMBtu)	SO2 (tons)	Operating at (Percent)	Estimated Coal Usage (tons/yr)
1	6,550,489	5,554	59.5	260,560.4
2	6,870,044	5,386	62.4	278,736.9
3	8,718,355	7,359	62.2	354,404.7
4	9,837,571	8,286	59.9	419,512.6
5	15,033,343	12,838	75.1	614,761.0
6	9,253,838	7,930	27.8	368,886.5
Totals or Average	56,263,640	47,353	53.2	2,296,862.2

Table 4. SO2 Actual Emissions (1995) (epa)

Unit No.	Heat Input (MMBtu)	SO2 (tons)	Operating at (Percent)	Estimated Coal Usage (tons/yr)
1	5,102,353	4,435	46.3	202,957.6
2	4,916,064	4,252	44.6	199,458.4
3	6,613,134	5,694	47.2	268,826.6
4	12,217,925	11,229	74.3	521,020.3
5	13,838,203	11,435	69.2	565,888.0
6	24,252,933	20,350	72.9	966,796.7
Totals or Average	66,940,612	57,395	63.3	2,724,947.6

Table 5. SO2 Actual Emissions (1996) (epa)

Unit No.	Heat Input (MMBtu)	SO2 (tons)	Operating at (Percent)	Estimated Coal Usage (tons/yr)
1	6,390,492	5,707	58.0	254,196.2
2	6,190,794	5,623	56.2	251,177.8
3	6,138,087	5,508	43.8	249,515.7
4	11,701,658	10,396	71.2	499,004.6
5	14,536,078	13,408	72.7	594,426.3
6	23,931,112	22,352	71.9	953,968.0
Totals or Average	68,888,221	62,994	65.1	2,802,288.6

Table 6. SO2 and NOx Actual Emissions (1990) (aor)

Unit No.	Coal Usage (tons)	Calorific Value (Btu/lb)	Heat Input (MMBtu)	SO2 (tons)	NOx (tons)	Operating at (Percent)
1	258,832	12,281	6.36E+06	5,412	4,400	57.7
2	271,860	12,281	6.68E+06	5,686	4,622	60.6
3	569,400	12,281	1.40E+07	7,179	5,854	99.8
4	388,325	12,281	9.54E+06	8,084	6,602	58.0
5	592,011	12,281	1.45E+07	12,512	10,064	72.7
6	362,296	12,281	8.90E+06	7,715	6,159	26.7
Totals or Average	2,442,724	12,281	6.00E+07	46,588	37,701	56.7

Table 7. SO2 and NOx Actual Emissions (1994) (aor)

Unit No.	Coal Usage (tons)	Calorific Value (Btu/lb)	Heat Input (MMBtu)	SO2 (tons)	NOx (tons)	Operating at (Percent)
1	148,818	12,281	3.66E+06	3,231	2,758	33.2
2	168,304	12,281	4.13E+06	3,623	3,119	37.5
3	297,144	12,281	7.30E+06	6,065	5,195	52.1
4	280,595	12,281	6.89E+06	6,072	5,199	41.9
5	505,129	12,281	1.24E+07	10,888	8,592	62.0
6	845,724	12,281	2.08E+07	18,110	14,382	62.4
Totals or Average	2,245,714	12,281	5.52E+07	47,989	39,245	52.2

Table 8. SO2 and NOx Actual Emissions (1995) (aor)

Unit No.	Coal Usage (tons)	Calorific Value (Btu/lb)	Heat Input (MMBtu)	SO2 (tons)	NOx (tons)	Operating at (Percent)
1	186,212	12,845	4.78E+06	4,043	3,450	43.4
2	186,383	12,845	4.79E+06	3,925	3,452	43.5
3	274,919	12,845	7.06E+06	5,929	5,090	50.4
4	463,970	12,845	1.19E+07	9,963	8,587	72.5
5	519,788	12,845	1.34E+07	10,363	8,840	66.7
6	897,070	12,845	2.30E+07	18,752	15,255	69.3
Totals or Average	2,528,342	12,845	6.50E+07	52,975	44,674	61.4

Table 9. SO2 and NOx Actual Emissions (1996) (aor)

Unit No.	Coal Usage (tons)	Calorific Value (Btu/lb)	Heat Input (MMBtu)	SO2 (tons)	NOx (tons)	Operating at (Percent)
1	265,722	11,718	6.23E+06	5,486	4,920	56.6
2	249,629	11,718	5.85E+06	5,064	4,622	53.1
3	298,202	11,718	6.99E+06	6,406	5,521	49.9
4	486,874	11,718	1.14E+07	9,855	9,011	69.4
5	574,584	11,718	1.35E+07	12,975	10,634	67.3
6	892,742	11,718	2.09E+07	20,307	16,520	62.9
Totals or Average	2,767,753	11,718	6.49E+07	60,093	51,228	61.3

Table 10. SO2 and NOx Actual Emissions (1997) (aor)

Unit No.	Coal Usage (tons)	Calorific Value (Btu/lb)	Heat Input (MMBtu)	SO2 (tons)	NOx (tons)	Operating at (Percent)
1	246,327	11,718	5.77E+06	5,344	3,235	52.4
2	368,326	11,718	8.63E+06	7,771	3,850	78.4
3	502,172	11,718	1.18E+07	9,772	5,093	84.0
4	474,906	11,718	1.11E+07	10,383	5,572	67.7
5	450,802	11,718	1.06E+07	10,753	4,515	52.8
6	640,000	11,718	1.50E+07	22,829	10,929	45.1
Totals or Average	2,682,533	11,718	6.29E+07	66,852	33,194	59.5

Table 11. Projected NOx and SO2 Emissions Based on Throughput Limit of 2.85 Million Tons of Coal (Standard in Units 1-6)

Unit No.	Coal Usage (tons)	Calorific Value (Btu/lb)	Heat Input (MMBtu)	Emissions Rate SO2 (lb/MMBtu)	SO2 (tons)	Emissions Rate NOx (lb/MMBtu)	NOx (tons)	Operating at (Percent)
1	243,116	12,281	5.97E+06	1.76	5,240	1.40	4,181	54.2
2	235,538	12,281	5.79E+06	1.73	5,014	1.31	3,782	52.5
3	308,309	12,281	7.57E+06	1.50	5,683	1.14	4,301	54.1
4	511,503	12,281	1.26E+07	1.74	10,951	1.37	8,634	76.4
5	588,710	12,281	1.45E+07	1.79	12,922	1.33	9,585	72.3
6	962,824	12,281	2.36E+07	1.98	23,402	1.43	16,874	71.1
Totals or Average	2,850,000	12,281	7.00E+07	N/A	63,212	N/A	47,357	66.2

Note: The emission rates for SO2 and NOx in Table 11 were determined by averaging the tons emitted and heat inputs in Tables 6-10.

Table 12. Projected NOx and SO2 Emissions Based on Throughput Limit of 3.30 Million Tons of Coal (PRB in Units 1-4)

Unit No.	Coal Usage (tons)	Calorific Value (Btu/lb)	Heat Input (MMBtu)	Emissions Rate (lb/MMBtu)	SO2 (tons)	Emissions Rate NOx (lb/MMBtu)	NOx (tons)	Operating at (Percent)
1	325,465	9,100	5.92E+06	1.90	5,627	1.10	3,258	53.8
2	315,718	9,100	5.75E+06	1.90	5,459	1.10	3,160	52.2
3	409,695	9,225	7.56E+06	1.60	6,047	0.92	3,477	54.0
4	680,226	9,225	1.26E+07	1.60	10,040	0.92	5,773	76.4
5	596,167	12,100	1.44E+07	2.00	14,427	0.85	6,132	72.1
6	977,374	12,100	2.37E+07	2.00	23,652	0.85	10,052	71.1
Totals or Average	3,304,645	10,142	6.99E+07	N/A	65,253	N/A	31,852	66.1

ADMINISTRATIVE OFFICES, LEGAL & WATER MANAGEMENT DIVISION
(900 - 9TH AVENUE
TAMPA, FLORIDA 33605
TELEPHONE (813) 272-5960
FAX (813) 272-5157

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TELEPHONE (813) 272-5530

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TELEPHONE (813) 272-5788

WETLANDS MANAGEMENT DIVISION
TELEPHONE (813) 272-7104

ENVIRONMENTAL PROTECTION COMMISSION
OF HILLSBOROUGH COUNTY

FAX TRANSMITTAL SHEET

DATE: 7/2/98

TO: Al Linero

FAX PHONE: Speed VOICE PHONE: SC 2781344

TOTAL NUMBER OF PAGES INCLUDING THIS COVER PAGE: 6

EPC FAX TRANSMISSION LINE: (813) 272-5605
FOR RETRANSMISSION OR ANY FAX PROBLEMS, CALL: (813) 272-5530

FROM: Rick Kirby
(CIRCLE APPLICABLE SECTION BELOW)

AIR DIVISION

-ENFORCEMENT

-ENGINEERING

-SUPPORT OPERATIONS

SPECIAL INSTRUCTIONS: Gannon Coal yard appln Comments

ADMINISTRATIVE OFFICES, LEGAL & WATER MANAGEMENT DIVISION
1900 - 9TH AVENUE
TAMPA, FLORIDA 33605
TELEPHONE (813) 272-5960
FAX (813) 272-5157

AIR MANAGEMENT DIVISION
TELEPHONE (813) 272-5530

WASTE MANAGEMENT DIVISION
TELEPHONE (813) 272-5788

WETLANDS MANAGEMENT DIVISION
TELEPHONE (813) 272-7104

MEMORANDUM

DATE: July 2, 1998

TO: Al Linero, P.E.

FROM: Rick Kirby, P.E. THRU: Jerry Campbell, P.E.

SUBJECT: TECO Gannon Station, Coal Yard Modification Application (0570040-006-AC)

The EPC has completed our review of the revised application and associated information submitted by TECO and dated June 8, 1998. The revised application reduces the allowable coal throughput increase to 3,666,671 tons/year. The revised application also presents the increased throughput as a pollution control project. The basis for this claim is proposed NO_x reduction as a result of burning a lower heat content coal, other emissions will increase according to the information provided. I request the following questions and comments be considered during this review.

1. The submittal does not address emissions from the coal yard itself. As previously outlined by EPC, we do not agree with the applicants methodology, particularly the bulldozing and crushing of coal. Emission factor from AP42 Chapter 11.9, "Western Surface Coal Mining" are appropriate.

2. The package includes emissions estimates for PM/PM10. Only one value is give for this factor. PM10 and total particulate matter are PSD regulated air pollutants (Table 212.400-2, F.A.C.). The applicant must provide emissions estimates for both from the entire facility.

3. The applicant submitted values for increases in SO_2, NO_x, and PM/PM10. Several other PSD pollutants emitted from coal burning were not evaluated. The applicant should provide analysis for CO, fluorides, lead, and mercury.

4. The EPC did not receive copies of calculations used to derive the emission estimates given. These should be provided along with all input parameters.

5. As stated in previous EPC comments regarding this application, the Gannon Stations' coal usage and power output have been steadily increasing over several years. From 1994 through 1996 Gannon Station's coal use has increased by approximately 23% with a corresponding heat input rate increase of 18%. Coal usage has been rapidly approaching the current permitted throughput limit of the yard.

In this submittal TECOs own numbers show that in the years they are considering baseline (1995/1996) the actual coal usage has risen to within 7% of the current limit. Given the admitted net significant increase and the fact that the coal yard limit has been reached, we do not believe this project qualifies as a pollution control project (PCP) as described in 40 CFR 52.21.

Thank you for the opportunity to provide comments.

mjh

cc: Lennox Anderson, BAR
Teresa Heron, BAR

AIR MANAGEMENT DIVISION
MEMORANDUM

TO: JERRY CAMPBELL P.E. THROUGH: STERLIN WOODARD

FROM: PATRICK SHELLS

SUBJECT: COAL USE AT THE GANNON STATION

DATE: OCTOBER 20, 1997

Tampa Electric is asking for a 335,000 ton increase in their fuel yard throughput, this represents an additional 7,800,000 MMBTU of heat value (using 1996 AOR fuel heat content). This represents enough additional heat input to run Unit # 6 with a capacity of 3798 MMBTU/hr for 2062 hours (one quarter), or the entire station at 12071 MMBTU/hr an addition 650 hours. What accounts for this requirement of addition heat input? Two possibilities are; increased power production or a large reduction in heating value of the fuel.

For the past three years, coal usage at the Gannon Station has been increasing. The coal use has increased approximately 23% from 1994 to the end of 1996 (see Figure 1). The increase in coal usage from 1995 to 1996 was further confirmed by DOE's EIA report, *Cost and Quality of Fuels for Electric Plants*. Attachment 1 (1995) and Attachment 2 (1996) show increases in the quantity of fuel received at the Gannon Station. The increase in coal throughput has corresponded with an 18% increase in heat input reported for the Gannon Station.

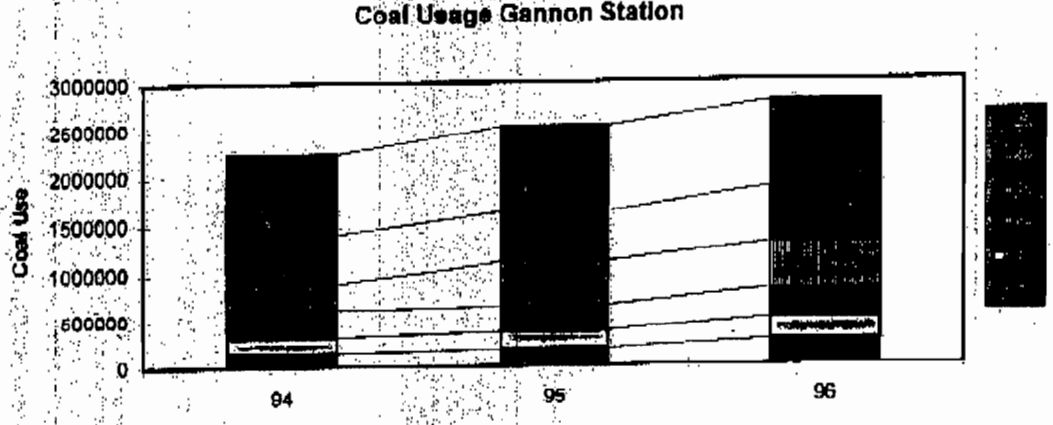

Figure 1 Coal Use (Source: AOR)

The resulting difference between the coal use change of 23% and the heat input change of 18% was due to a reduction in the heat content of the coal. This was confirmed by additional calculations. Therefore, the majority of the increase in coal throughput is the result of increased power generation and not a change in heating value of the coal.

Print Date: 10/20/97 9:35 AM
c:\windows\desktop\tec\coal yard memo.doc

The conclusion of increased power production at the Gannon Station was confirmed by analysis of the EPA quarterly summary data which includes MWH of power generation. Gannon Station has increased power production 21% from 4th Quarter 1996 through 2nd Quarter 1997. This was further reflected in increases in station capacity measured in terms of heat input.(See Figure 2)

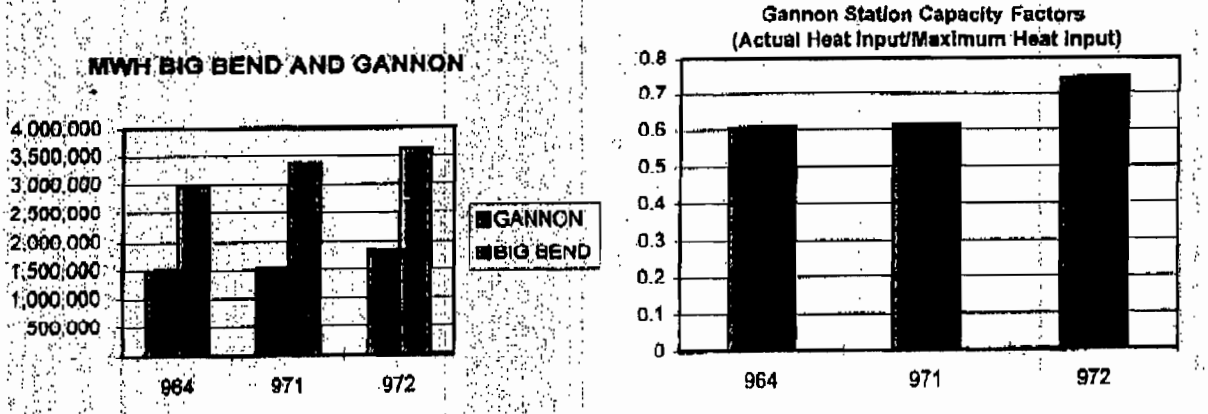

Figure 2: MWH Power Generation at Gannon and Big Bend & Gannon Station Capacity Factors (Source: EPA Acid Rain Division)

The increases in station heat input capacity are broken down into unit heat input capacities for the years 1994, 1995 and 1996 (see Figure 3). The largest changes are in units 1 and 2. It was noted that these units have had periods of downtime in which work was done on these units in recent years.

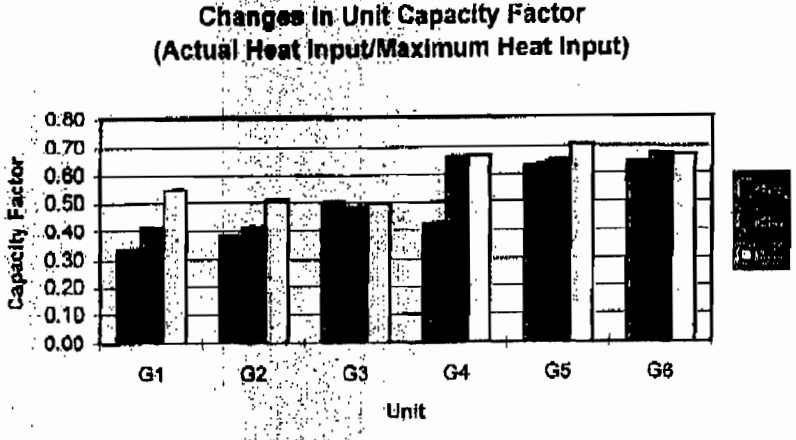

Figure 3: Unit Capacities (Source: Calculated from AOR Heat Input)

The possibility that the increase in Gannon Station load was due to a decrease in Big Bend station load was looked into. During the pass three quarters, the Big Bend station has also picked up additional load. Therefore, the entire TEC system has been increasing power generation for this time period (see Figure 2).

The resulting increases in SO2 emissions at the Gannon station were observed by the CEM's (see Figure 4).

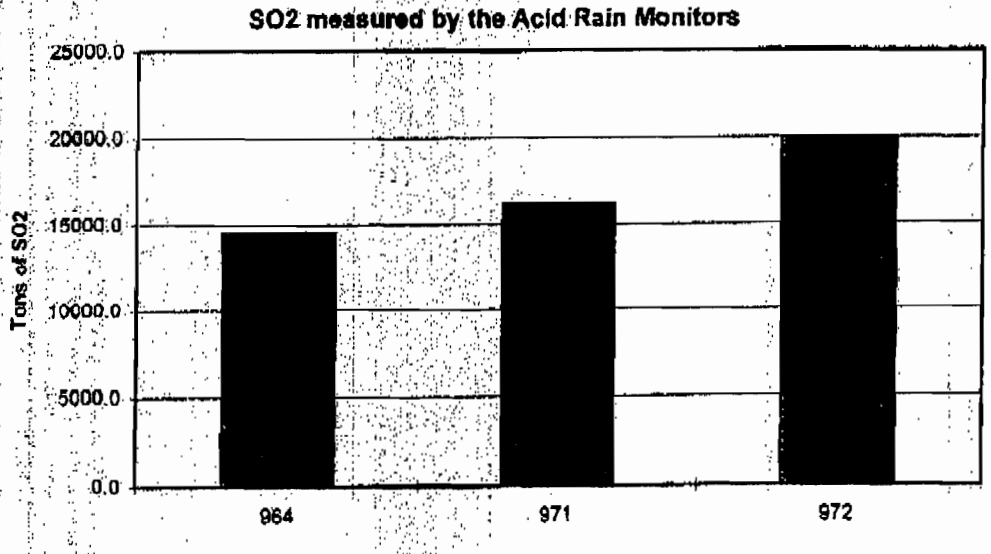

Figure 4: SO2 Emitted (Source: EPA Acid Rain Division)

Recommendations:

1) The Gannon Station coal yard throughput limit is the limiting factor in the production of more power at the Gannon Station. It is recommended that permitting address the coal yard as "bottle neck" in the production of power at the Gannon Station and consider the increase in (PM, NO_x, CO, VOC, and Pb) emissions from the six boilers resulting from an increase in coal throughput.

2) Further investigation should be conducted to determine if any of the Units at Gannon have been modified or reconstructed in order to accommodate the significant increases in their capacity factors. An example is Gannon 1 which has increased its capacity factor from 0.34 to 0.55 in the past 3 years.

Cc: Rick Kirby, P.E.

Department of Environmental Protection

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

June 10, 1998

Mr. Brian Beals, Section Chief
Air, Radiation Technology Branch
Preconstruction/HAP Section
U.S. EPA - Region IV
100 Alabama Street, Southwest
Atlanta, Georgia 30303

Re: TECO Gannon Plant-Coalyard and Fuel Use Project

Dear Mr. Beals:

Attached for your comment is a PSD Non-Applicability evaluation submitted in support of a request to increase the coalyard throughput to account for the lower heating value and higher moisture of certain coals increasingly used at the Tampa Electric Company (TECO) Gannon Plant in Tampa.

Because there is a federally-enforceable coalyard throughput limit of 2,850,000 tons per year and the units operate at a relatively low availability, a relaxation could theoretically lead to increased use of the six units. However, we could simply change the basis of the throughput limit from an annual tonnage to the equivalent annual heat throughput. TECO has submitted information to demonstrate that the project also qualifies as a pollution control project (PCP) in accordance with 40 CFR 52.21(b)(32).

We intend to make a decision on the matter shortly and welcome your input. If you have any questions, please call me at (850)921-9523.

Sincerely,

A. A. Linero, P.E.
Administrator
New Source Review

AAL/kt

Enclosure

TECO

TAMPA ELECTRIC

June 8, 1998

Mr. A.A. Linero, P.E., Administrator
New Source Review Section
Florida Department of Environmental Protection
Bureau of Air Regulation
111 Magnolia Drive, Suite 4
Tallahassee, Florida 32301

Via FedEx
Airbill No. 803727909101

Re: Tampa Electric Company (TEC) - F.J. Gannon Station
Fuelyard Modification Construction Permit Application
Supplemental Information
Application Reference No. 0570040-006-AC

Dear Mr. Linero:

This correspondence contains TEC's evaluation demonstrating that our NO_x Reduction Pollution Control Project (PCP) at F.J. Gannon Station meets the PSD PCP exemption criteria. This supplemental information is submitted as per your request at our January 29, 1998 meeting, and as established during our meeting with Florida Department of Environmental Protection (FDEP) staff on Thursday, May 28, 1998. Please note that the requested annual coal throughput increase associated with this PCP (and included in the above referenced air construction permit application) has been revised to 3.30 million tons per calendar year, as a result of the finalization of the Big Bend and F.J. Gannon Stations Phase II Acid Rain and Title V compliance plans.

Also enclosed are three (3) signed and sealed copies of the revised pages for the construction permit application. One (1) signed and sealed copy has also been sent to both Mr. Rick Kirby, P.E. at the Environmental Protection Commission of Hillsborough County (EPCHC), and Mr. Gerald Kissel, P.E. at FDEP - Southwest District - Tampa.

As communicated to FDEP during our meeting in Tallahassee last week, TEC is requesting that FDEP consider TEC's system-wide emission reductions in their evaluation of our requested fuelyard coal throughput increase. In light of anticipated NO_x emission reductions of 15,000 tons per year, coupled with the critical nitrogen deposition issues in and around Tampa Bay, TEC strongly believes that this project falls well within the definition of a PCP. This coal throughput increase will also allow TEC to achieve significant system-wide SO_2 reductions using the new Big Bend Station Units 1 and 2 scrubber and the F.J. Gannon Station Title V compliance plan. Finally, FDEP approval of TEC's requested coal throughput increase is essential to maintaining the Early NOx Reduction MOU between TEC and EPCHC.

Thanks again for your cooperation and assistance with this project. If you have any additional questions or comments, feel free to call me at (813) 641-5034.

Sincerely,

Theresa J.L. Watley
Consulting Engineer
Environmental Planning

EP\gm\TJLW596

Attachments

c: Mr. Clair Fancy - FDEP, Tallahasee
Mr. Richard Kirby - EPCHC (enc)
Mr. Gerald Kissel - FDEP, Tampa (enc)

TAMPA ELECTRIC

January 9, 1998

Mr. Jerry Campbell
Assistant Director - Air Programs
Environmental Protection Commission
of Hillsborough County
1410 North 21st Street
Tampa, FL 33605

Re: Tampa Electric Company
F.J. Gannon Station
1997 Coal Throughput

Dear Mr. Campbell:

As per our recent telephone conversation, this letter is being provided to conclude our ongoing discussions concerning the 1997 annual throughput limit at Gannon Station. We truly appreciate EPC's efforts in working with us to develop a back-up plan that allowed for operating flexibility, while mitigating any potential environmental impacts, at Gannon Station if we were faced with a permit exceedance. We are pleased to inform you that we did not exceed our annual throughput limit of 2.85 million tons of coal. Thanks to the concerted efforts from several departments at Tampa Electric, we were able to maintain compliance with the throughput limit established in permit AC29-114676 and imposed in permit AO29-216380. Attached you will find a monthly accounting of the coal deliveries to the F.J. Gannon Station during 1997, which totaled 2.84 million tons.

Again, thank you for your cooperation, and I look forward to resolving the long-term fuel yard throughput issues over the next few months.

Sincerely,

Gregory M. Nelson, P.E.
Administrator - Air Programs
Environmental Planning

EP\gm\TJLW583

Enclosure

c/enc: Mr. Clair Fancy, FDEP - Tallahassee
Mr. Bill Thomas, FDEP - Tampa
Ms. Karen Sheffield, TEC

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1997 Coal Deliveries by Month - GANNON STATION (TONS)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Fuel Expense Report (Fuels Accounting)	276085	260705	222016	189805	245488	356487	248103	305914	226142	155635	147354	207293	2841027

Memorandum

Florida Department of
Environmental Protection

TO: Kirby Green

FROM: Howard Rhodes

DATE: December 15, 1997

SUBJECT: TECO Gannon Coal Yard Project

On July 1, the Southwest District received a permit application from TECO to increase throughput at the Gannon Coal Yard from 2.85 million tons per year (MMTPY) to 4 MMTPY. TECO submitted additional information in response to completeness letters of July 25, September 18 and October 10. It appeared initially that the only issue was how to avoid an increase in particulate emissions from the increased operations at the coal yard. The County pointed out that an increase in throughput may actually be a "debottlenecking project" resulting in increased use of the electrical units or, at the very least, an increase in particulate emissions from those units due to the use of high ash, low Btu, Powder River Basin (PRB) coal.

TECO began experimenting with PRB coal as a strategy to cut back nitrogen oxides (NO_X) emissions in 1996. PRB coal also has low sulfur. They are determining the best way to blend it with any other coals available to them to meet their economic and environmental objectives. They will likely realize a decrease in NO_X, little change in SO_2, and an increase in PM within their permitted limits. The units would probably not produce significant additional electricity. They would just consume more coal to reach the same historical heat input and output.

The County believes a PSD permit may be required. Conversations between the District and EPA suggest the same. The reason is that any change, including relaxation of a federally enforceable permit condition (like the present 2.85 MMTPY throughput limit), at a facility requires PSD review for all units affected by the change.

Our staff (including Doug Beason and Pat Comer of OGC) met with Hillsborough County and TECO (including Larry Curtin) on November 4 expecting to have a full discussion of the matter. Instead, TECO (unexpectedly) focused on how to handle a consent order if they exceed their permitted limits by the end of the year. They were told by Pat Comer that an order cannot be given in advance of a violation, especially when it may involve a PSD violation. This situation, unlike an event such as a hurricane, does not warrant an emergency order. On December 1, we received a copy of a letter from TECO indicating that they will submit responses to the most recent request by the Southwest District by December 31.

What is required is that the Bureau of Air Regulation conduct a PSD Applicability review. We advised the District to refer the permit to BAR. All such permits are now normally done here. There are no construction permits for the boilers whereas there is one for the coal yard. We believe we can conduct the determination quickly if TECO provides the information as indicated in the December 1 letter and works directly with BAR. We would provide EPA the reasons for our determination. Although EPA was given a brief summary of this situation by the District staff, we do not believe that EPA had enough facts to offer an opinion to the Department. Normally they prefer that we make such decisions. If PSD does not apply, relatively simple permit revisions of the coal yard permits are required.

According to the District staff, TECO plans to work off their inventory at Gannon to avoid exceeding their permitted throughput this year. This is what they should do to avoid any permit violations. EPA is reviewing past projects at various power companies, including TECO, for PSD applicability.

TAMPA ELECTRIC

November 24, 1997

Mr. Gerald Kissell, P.E.
Air Permitting Supervisor
Florida Department of Environmental Protection
Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Via Facsimile and U.S. Mail

Re: Tampa Electric Company (TEC)
Fuel Yard Modification Construction Permit Application
Response to Agency Comments
Application Reference No. 0570040-006-AC

Dear Mr. Kissell:

Pursuant to the provisions of Section 120.60, F.S. and Chapter 62-12.070(5), F.A.C., this correspondence is to inform you that TEC's responses to the agency's comments received on October 28, 1997 regarding the above referenced construction permit application will be submitted in full by December 31, 1997.

If you have any additional questions or comments, feel free to contact me at (813) 641-5034. Thank you for your assistance on this project.

Sincerely,

Theresa J.L. Watley
Consulting Engineer
Environmental Planning

EP\gm\TJLW574

c: Mr. Richard Kirby - EPCHC
Mr. Al Linero - FDEP Tall.

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cc: L. Anderson, BAR
C. Fancy, BAR

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ADMINISTRATIVE OFFICES, LEGAL & WATER MANAGEMENT DIVISION
1900 - 9TH AVENUE
TAMPA, FLORIDA 33605
TELEPHONE (813) 272-5960
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AIR MANAGEMENT DIVISION
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ENVIRONMENTAL PROTECTION COMMISSION
of Hillsborough County

FAX Transmittal Sheet

DATE: 12/15/97

TO: Al Linero

FAX Phone: _____ Voice Phone: _____

TOTAL NUMBER OF PAGES INCLUDING THIS COVER PAGE: ___

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FROM: Jerry Campbell
(Circle applicable section below)

Air Division

-Enforcement

-Engineering

-Support Operations

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HILLSBOROUGH COUNTY

ADMINISTRATIVE OFFICES, LEGAL & WATER MANAGEMENT DIVISION
1900 - 9TH AVENUE
TAMPA, FLORIDA 33605
TELEPHONE (813) 272-5960
FAX (813) 272-5157

AIR MANAGEMENT DIVISION
TELEPHONE (813) 272-5530

WASTE MANAGEMENT DIVISION
TELEPHONE (813) 272-5788

WETLANDS MANAGEMENT DIVISION
TELEPHONE (813) 272-7104

December 15, 1997

Ms. Karen A. Sheffield, P.E.
General Manager
Tampa Electric Company
P. O. Box 111
Tampa, FL 33601-0111

Re: Gannon Station Fuel Throughput

Dear Ms. Sheffield:

This letter is a follow-up to continuing discussions between Tampa Electric and EPC staff concerning the throughput limits at the Gannon coalyard. As you are aware, the State-issued construction permit AC29-114676 contains a federally enforceable condition limiting the yard to 2.85 million tons of coal per year. It is our understanding that Tampa Electric is interpreting that to be a calendar year limitation and that you are close to reaching that figure for 1997. The EPC has the lead on compliance in this matter and we have been asked to respond. The purpose of this letter then is to provide Tampa Electric some information regarding the EPC's intentions.

The EPC does not have the delegated or the statutory authority to change the existing permit limitation. The DEP is the permitting agency and we will work with them to process Tampa Electric's request to increase the coalyard throughput. The issue of what was intended to be covered by the federal oil to coal authorization and how the EPA's PSD regulations relate will be sorted out in time. Our analysis of the Tampa Electric's construction permits indicates there are PSD implications, but admittedly we have not studied the federal conversion initiative to see if PSD was to be somehow preempted. Clearly, this is a key issue in processing your requests.

In the near term, we have been asked what steps could be taken to minimize the EPC's concerns about exceeding the 2.85 million ton limitation prior to December 31. We have been advised that Tampa Electric could probably operate the Gannon station without exceeding it, but this would involve holding deliveries and running the plant reserves below the recommended minimums. In order to avoid this scenario and mitigate any environmental impact, the EPC would not initiate administrative action if the limit were exceeded provided the following conditions were met:

1. Tampa Electric will treat all coal destined for the Gannon station prior to delivery at the facility with a dust suppressing surfactant. Evidence of the treatment, including an MSDS and the approximate application rate in gallons of surfactant per ton of coal, shall be available at the plant upon request on each and every shipment received. This shall continue until such time as the Department takes final agency action on the throughput request.

2. The EPC will be notified as soon as practical prior to the receipt of any coal exceeding the 2.85 million ton figure before year's end. The notification shall be in writing and include the year-to-date total coal received, the amount in this particular shipment, how it is being received (rail or barge), and the type and the rate of application of the surfactant.

3. Tampa Electric shall evaluate the performance of each individual electrostatic precipitator controlling the particulate matter emissions from the combustion of the coal in the boilers. At a minimum this will involve an analysis of the voltage and current parameters to ensure maximum efficiency. This would be similar to the corona power exercise the EPC attempted previously. A written copy of the analysis and any recommended changes in operation shall be submitted to the EPC within 45 days of completion. The analysis and the results should be completed no later than June 1998.

Be advised this letter only covers the contingency that excess coal is received-not burned. If Tampa Electric were to have to fire excess coal, then the EPC would have to reevaluate the guidance provided above. This would be a more serious concern and the agency would have less flexibility.

We also need to mention that all annual throughput limitations need to be based on twelve month rolling averages in order to meet the EPA's practical enforceability test. Thus, if the Department determines that the federal oil to coal initiative did not preempt PSD, and it is appropriate to continue limiting the facility's potential to emit with a coal throughput below the boiler's capacity, then it would seem as though the Department would be required to use rolling averages. This would be reflected in any new construction permit as well as your Title V permit. We noted the draft Title V does not use the rolling average terminology, and we will ask that it be changed accordingly.

Please keep us apprised of this situation, and we will try to work with you. If you have any questions, please contact myself of Jerry Campbell.

Sincerely,

Roger P. Stewart
Executive Director

cag

cc: Clair Fancy
Bill Thomas

TAMPA ELECTRIC

November 24, 1997

Mr. Gerald Kissell, P.E.
Air Permitting Supervisor
Florida Department of Environmental Protection
Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Via Facsimile and U.S. Mail

Re: Tampa Electric Company (TEC)
Fuel Yard Modification Construction Permit Application
Response to Agency Comments
Application Reference No. 0570040-006-AC

Dear Mr. Kissell:

Pursuant to the provisions of Section 120.60, F.S. and Chapter 62-12.070(5), F.A.C., this correspondence is to inform you that TEC's responses to the agency's comments received on October 28, 1997 regarding the above referenced construction permit application will be submitted in full by December 31, 1997.

If you have any additional questions or comments, feel free to contact me at (813) 641-5034. Thank you for your assistance on this project.

Sincerely,

Theresa J.L. Watley
Consulting Engineer
Environmental Planning

EP\gm\TJLW574

c: Mr. Richard Kirby - EPCHC
Mr. Al Linero - FDEP Tall.

cc: L. Anderson, BAR
C. Fancy, BAR

TAMPA ELECTRIC COMPANY
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TAMPA, FL 33601-0111
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TELEPHONE (813) 272-5788

WETLANDS MANAGEMENT DIVISION
TELEPHONE (813) 272-7104

M E M O R A N D U M

DATE: November 3, 1997

TO: Al Linero, PE

FROM: Richard C. Kirby IV, PE THROUGH: Jerry Campbell, PE

SUBJECT: **Tampa Electric Company (TECO) - Gannon Coal Yard (0570040-006-AC)**

TECO has made application for a construction/modification permit to increase coal throughput from 2.85 to 4.0 million tons per year. The application was received in June, but to date it is still incomplete. The current 2.85 million ton per year limit was established in federally enforceable construction permit AC29-114676 issued in 1987 by Tallahassee. The permit reads "per year" and TECO is interpreting that to be a calendar year (Jan 1 - Dec 31).

The additional fuel is to be burned at Gannon and is not being shipped off elsewhere. We reviewed EPA's New Source Review Manual, Prevention of Significant Deterioration and Non Attainment Area Permitting, October 1990. This manual was not finalized, but it is considered an authoritative document. Based on EPC's analysis, the handling of the additional 1.15 million tons of coal will produce a significant increase in PM emissions just in the yard itself. A second issue is the emissions from the combustion of the coal. We feel it should be reviewed for PSD/BACT applicability as well under the debottlenecking provision.

Since the coal yard throughput limit also limits the amount which can be burned in the furnaces, it in effect determines the potential emissions for the facility. By permit, any individual boiler can operate 8760 hours, but in total the facility's fuel is capped at 2.85 million tons. The definition of potential to emit incorporates limitations on fuels, so it appears appropriate to consider it here. The permitting history indicates the throughput limitations are not arbitrary, and were based on the facility's anticipated use when it was converted from fuel oil to coal in the late 70's and early 80's. The fairly dramatic increase in coal usage over the past several years (24% in 3 years) and the size of

the increase requested (1.15 million tons or 40%), indicate to us Gannon is being converted from a cyclic plant to a baseload facility. This seems to go beyond an inconsequential request and requires a closer look. Part of the tonnage increase (maybe a fifth) appears to be due to the burning of lower btu coals to lower NOx and that should be accounted for in our review. However, when the heat input to the facility increases, that would seem to warrant NSR. A historical summary is attached (attachment #2).

The emissions which result from increased combustion clearly should be included in determining the net emissions increase. The relaxation in the coal yard removes a bottle neck at the facility and the NSR Guidance Notebook has established precedence where this must be taken into account (see attachment #1).

Thank you for the opportunity to provide comments.

Attachments

cag

3.52-1

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107-4431

OCT 21 1993

Mr. Thomas L. Henderson
Regional Director
Air Regional Office
Virginia Department of Environmental Quality
7701-03 Timberlake Road
Lynchburg, Virginia 24502

Dear Mr. Henderson:

I have reviewed your letter dated October 6, 1993 and discussed it briefly with Tom Berkeley and other members of your office.

EPA's Office of Air Quality Planning and Standards (OAQPS) has reviewed the conclusions outlined below but I have not requested that a full review of the Lynchburg Foundry project be made and a formal EPA opinion be issued. I felt, because of an immediate opinion is needed for your meeting with the company this week, that time would not allow for such an in depth analysis and review. If a formal Agency opinion does become necessary, for any reason, please let me know and we will initiate that process.

I concur with the DEQ's determination that the proposed modification is subject to PSD review.

The Lynchburg Foundry Company owns and operates an iron foundry including cupolas, molding equipment, and other related process equipment. The company plans to modify (physically change) the molding equipment and other process equipment downstream of the cupolas to modernize and expand the production capability of the plant. Although not be physically changed, the capacity of the cupolas will be expanded as a result of the downstream modifications and emissions increases will result.

The PSD regulations at 40 C. F. R. §52.21(b)(2) define a "major modification" as one in which a physical change in or change in the method of operation of a major stationary source results a significant net emissions increase. The cupola is an **emissions unit** [40 CFR §52.21(b)(7)] at the **stationary source** [40 CFR §52.21(b)(5)]. The **net emissions increase** [40 CFR §52.21(b)(3)] occurs at the source and must include all emissions increases and decreases which are the result of the modification. Clearly, the emissions from the cupola would not experience a 500 tons per year increase in Carbon Monoxide emissions if the foundry were not being physically modified and production expanded. Therefore, your conclusion that the proposed

modification is subject to PSD review is the appropriate determination.

Based on the historical data provided as an attachment to your letter, this source is clearly "major" for purposes of PSD and, again, your conclusion in "Position Number 1" that the 1977 permit contained state and federally enforceable production limits is appropriate.

A detailed discussion of "Major Modification Applicability" and "netting" can be found in the October 1990 New Source Review Workshop Manual, Chapter A, Section III., pages A.33 through A.56, a copy of which is enclosed. If your office needs a copy of the complete Manual, please call me and I will see that copies are sent to you immediately. A situation similar to the one presented by Lynchburg Foundry is presented on page A.53. A new unit is being installed; existing units A and B are not being physically modified but their emissions will increase as a result of the installation of the new unit; the "anticipated increase must be included as part of the increase from the proposed modification".

A last point to consider as your office develops the PSD permit for this source is the actual netting transaction itself. In order for emission decreases to be creditable, they must be based upon current actual emissions and be federally enforceable. Therefore, any units that are being shutdown or modified to produce the decrease must be included in the PSD permit.

If I can be of any further assistance to you, please do not hesitate to contact me at Area Code 215, 597-8379 or at the above address.

Sincerely,

Eileen M. Glen, Chief
New Source Review Section

Enclosures

cc: Ms. Pamela Faggert, Director
Air Division, VDEQ

Mr. Robert Beasley, OPE
Air Division, VDEQ

Mr. David Solomon, Chief
New Source Review Section, OAQPS

Outline of Tampa Electric Coalyard Permitting:

6/11/82	Noble & Associates	coalyard	Modification includes: new cyclone separators will be added to the existing bunker feed, replace existing fines crusher building with a new building. Throughputs: existing 1,269,950 ton/year (86% rail, 14% barge), proposed 2.4 mil ton/year (1.5 million by rail, 0.9 million by barge)
10/6/82	Application for modification to coal yard	coalyard	Modification of Gannon coal handling to serve reconverted units 1-4. Existing emissions: 39.4 tons/year, Proposed: 59.8 , increment 20.4 tons
11/2/82	Response to incompleteness letter	coalyard	Attached Noble report, incremental increase is 21.45
3/9/83	DER Technical Evaluation and Preliminary Determination for AC29-61276	coalyard	The particulate emission increase will be less than 25 tons per year...therefore the modification is not subject to pre-construction review.
4/12/83	issuance of AC29-61276	coalyard	Construction permit is issued, no throughput limits
10/2/84	Application for an air operating permit	coalyard	Control devices: enclosures and wet dust suppression system
10/2/84	Certification of completeness of construction	coalyard	Initial operation: September 1957 Operation rates: 0-3000 tons/hr Design Capacity: 2.4 million tons/year During compliance test: 1772 tons/hr
10/17/84	Letter from DER accepting AC29-61276 modification	coalyard	Modification is a deletion of the H/J transfer point venting and associated cyclone dust separator
9/19/85	EPC comments on coalyard operating permit	coalyard	Comment: if coal throughput is greater than 2.4 million tons, permittee must recalculate PM increment. THIS WAS DELETED AND THE REQUIREMENT FOR ANNUAL THROUGHPUT IN THE YARD SHALL NOT EXCEED 2.4 MILLION TONS AS PER THE CONSTRUCTION PERMIT.
9/26/85	Meeting record	coalyard	Condition for 2.4 million throughput limit is discussed, TEC requests 20 % opacity limit for coal piles
10/25/85	air operating permit is issued	coalyard	The maximum design handling rates for each point is addressed.
1/8/86	application for a modification of coalyard	coalyard	Amendment of the coal throughput to the Gannon Coal Yard facility from the initial design throughput rate of 2.4 million to a revised maximum operating rate of 2.89 million tons/year. No physical changes will be made to the coalyard. Attachment 1: Pre-construction emissions: 156.2 tpy Permitted: 160.12 tpy Proposed: 180.82 tpy Increment 24.65 tpy
2/27/86	Response to incompleteness letter AC 114676	coalyard	No information, attachments 1-5 are missing
1/29/87	Response to 2nd incompleteness	coalyard	Attachment graphing increase in emissions (linear increase), spreadsheet with coal yard calculations

4/8/87	Technical evaluation and preliminary determination	coalyard	Evaluated increase from 2.4 to 2.85 million tons/yr, PM increment is 23.97 tons/yr Main Mitigation Points: 1) coal pile management being improved by direct throughput 10% to the bunkers 2) water sprays or chemical wetting will be applied to storage piles during dry periods to maintain an opacity of less than or equal to 5% this condition is necessary to justify the 50% and 70 % control efficiencies claimed by TEC
5/19/87	Issuance of AC29-114676	coalyard	Condition #8 the annual coal throughput shall not exceed 2.85 million tons per year.
7/11/87	application for operating permit	coalyard	Nothing new
10/1/87	issuance of modification to operating permit AO29-136682 Replaces: Ac29-114676 and AO29-94044	coalyard	Condition 7 annual throughput limit is 2.85 million tons
8/1/88	application for a construction permit for the replacement of the west barge coal unloader	coalyard	Increase throughput capability in the new coal unloader existing throughput:
10/13/88	Technical evaluation and preliminary determination for Gannon coal unloader	coalyard	Annual throughput will be 1,020,000 tons coal/year emission increment is a -0.1 tons/year existing 0.61tpy to proposed 0.51tpy
12/8/88	Issuance of AC152987 for the replacement of the west coal unloader	coalyard	Condition 1: 1500 tph and 1070000 tons/yr coal throughput limit Condition 3: permittee shall use a wetting agent to meet 5 % opacity.
4/7/89	unit 1-6 rotoclone application	Rotoclone	Coal transfer rate 730,000 ton/yr, utilization rate 1600 ton/hr per bunker
9/1/89	application for operating permit for coalyard	coalyard	nothing new
10/6/89	first AO for rotoclones	Rotoclones	annual coal throughput < 1600 TPH/bunker
12/15/89	issuance of amended air operating permit for coalyard AO29-136682	coalyard	operating permit for replacement of ac permit
3/10/93	memo to DEP concerning the renewal of operating permitAO29-136682	coalyard	Coalyard throughput for 1991 was 2.29 million tons Iron ore will be replacing 1/2 of the limestone as a fluxing agent, ie 14,250 tpy WAS THE EMISSIONS INC. DUE TO THE USE OF THIS FLUXING AGENT LOOKED AT?
4/23/93	Issuance of AO29-216480	coalyard	
8/28/95	letter from TEC	coalyard	TEC is informing DEP that it intends to construct the third of four coal reclaimers permitted under AC 29-61276

ENVIRONMENTAL PROTECTION COMMISSION
HILLSBOROUGH COUNTY

ADMINISTRATIVE OFFICES, LEGAL & WATER MANAGEMENT DIVISION
1900 - 9TH AVENUE
TAMPA, FLORIDA 33605
TELEPHONE (813) 272-5960
FAX (813) 272-5157

AIR MANAGEMENT DIVISION
TELEPHONE (813) 272-5530

WASTE MANAGEMENT DIVISION
TELEPHONE (813) 272-5788

WETLANDS MANAGEMENT DIVISION
TELEPHONE (813) 272-7104

October 27, 1997

Mr. Patrick Ho
Environmental Planning
Tampa Electric Company
P. O. Box 111
Tampa, FL 33601-0111

Re: Gannon Fuel Yard

Dear Mr. Ho:

This is in response to TEC's correspondence of October 10, 1997 and follow up conversations regarding the fuel throughput needs for the Gannon Station. As you are aware, the Florida DEP is the permitting authority for your facility and they will render any final determinations regarding TEC's permits. However, based on our understanding of the permitting rules and our discussions with the DEP staff, we do not believe they will be able to grant any type of temporary permit which would allow TEC to exceed the current 2.85 million ton throughput limitation. This limitation is listed in the federally enforceable permit AC29-114676 issued May 19, 1987, and the procedures to modify that figure involve considerably more deliberations than TEC's timeframe would seem to allow.

If we are correct, and there is not sufficient time for TEC to provide a complete application and have it given a proper review, then a consent order may be an option. Consent orders traditionally allow for some continued activity while corrective actions are being taken. They also have the advantage of a shorter turnaround and potentially could be in place in the matter of a few weeks. The remedies would have to be agreed to by the signatories, as well as the DEP and the EPA. Both have oversight responsibilities on EPC's compliance activities, and it would make no sense to proceed without their concurrence.

We have not approached the Executive Director on this matter, and merely mention the consent order mechanism as a possible option. If the throughput exceedance appears imminent and TEC would be receptive to discussing an order, then please notify the EPC.

Sincerely,

Jerry Campbell

Jerry Campbell, P.E.
Assistant Director
Air Management Division

cag

cc: Clair Fancy
Bill Thomas
Dick Dubose

Department of Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

October 24, 1997

Certified Mail - Return Receipt Requested

Ms. Janice K. Taylor
Tampa Electric Co.
P.O. Box 111
Tampa, FL 33601-0111

Re: Gannon Fuel Yard - two applications:
1) Air Permit Application, ref. 0570040-006-AC
2) October 10, 1997 request for temporary permit condition

Dear Ms. Taylor:

Our review of the subject application(s) has revealed a need to conduct an analysis of the effects that increasing throughput in the coal yard will have on emissions generated by the units burning the fuel. As this matter involves a determination of applicability of the regulations for the Prevention of Significant Deterioration (PSD), we have requested assistance from the New Source Review Section in Tallahassee. In order to facilitate the PSD applicability review and to continue processing of your application(s), please submit the following additional information, pursuant to Rule 62-4.050(1), F.A.C.:

1. Your responses to date have not satisfactorily addressed the issue raised in the attached Cctober 8, 1997 letter to Brian Beals. Please respond to that issue.

2. Construction permit AC29-114676, issued May 19, 1987, authorized an increase in coal throughput at the coal yard from 2.4 million tons per year to 2.85 million tons per year. The current application leads to the raising of the question as to the basis for the request to increase the coal yard throughput at that time, particularly regarding any considerations at the boilers. Please provide further detail.

3. Please address the issue discussed in the HEPC correspondence attached.

Note - Rule 62-4.050 requires applications of this type to be certified by a professional engineer registered in the State of Florida. This requirement also applies to responses for additional information of an engineering nature. Therefore, your response to the above requests should be certified as above.

"NOTICE: Pursuant to the provisions of Section 120.60, F.S. and Chapter 62-12.070(5), F.A.C., if the Department does not receive a response to this request for information within 90 days of the date of this letter, the Department will issue a final order denying your application. You need to respond within 30 days after you receive this letter, responding to as many of the information requests as possible and indicating when a response to any unanswered question will be submitted. If the response will require longer than 90 days to develop, an application for new construction should be withdrawn and resubmitted when completed information is available. Or for operating permits, you should develop a specific time table for the submission of the requested information for Department review and consideration. Failure to comply with a time table accepted by the Department will be grounds for the Department to issue a Final Order of Denial for lack of timely response. A denial for lack of information or response will be unbiased as to the merits of the application. The applicant can reapply as soon as the requested information is available."

Your response should be submitted to this office, with copies to HEPC and the New Source Review Section in Tallahassee. If you have any questions, please call me at (813)744-6100 extension 107, or for questions regarding the PSD applicability determination, please call Al Linero, P.E., at (850)488-1344.

Regarding your request for a temporary permit condition (item 2 above), the request is denied (based on incompletion item 1. above). See the attached "Notice of Denial."

Sincerely,

Gerald J. Kissel, P.E.

c: Mr. J. Campbell/Mr. Rick Kirby, HEPC
Mr. G. Richardson, DEP
Mr. A. Linero, DEP

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Florida Department of

Memorandum **Environmental Protection**

TO: Brian Beals, EPA Atlanta

FROM: Jerry Kissel, Air Program SWD

DATE: October 8, 1997

Tampa Electric Co's (TECO) Gannon plant has separate permits for its coal yard and its boilers. In order to reduce NO_x emissions, they are changing to a lower btu/lb western coal and have applied for a modification to the coal yard permit to increase the annual throughput. The coal yard modification is not PSD-significant.

The increased coal throughput will cause a PSD-significant increase in PM at the boilers. Should this factor be brought into the evaluation of the coal yard application? De-bottlenecking has been mentioned, and TECO has stated that de-bottlenecking refers to an increase in production from their boilers (and there will be no increase in production), not to an increase in emissions from their boilers.

I talked to Greg Worley on this today, who said that it is the total facility emissions which must be evaluated, so I believe we have our answer, but I'd appreciate a written reply.

Thanks

cc: R. Kirby, EPC
A. Linero, DEP
J. Taylor, TECO

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ADMINISTRATIVE OFFICES, LEGAL & WATER MANAGEMENT DIVISION
1900 9TH AVENUE
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TELEPHONE (813) 272-5788

WETLANDS MANAGEMENT DIVISION
TELEPHONE (813) 272-7104

M E M O

DATE: October 24, 1997

TO: Jerry Kissel, P.E.

FROM: Rick Kirby, P.E.

SUBJECT: Tampa Electric Company , Gannon Coal Yard Modification Request
0570040-006-AC

I have reviewed TECO's responses to our requests for additional information. These responses are marked Addendum, August, 1997 and Addendum, September, 1997. Based on my review I have determined there are 2 remaining issues.

1. There are more appropriate emission estimation factors and methodologies in AP42 than those presented by TECO. In particular, TECO continues to use total moisture content in there PME calculations. As stated previously, coal surface moisture content should be used. Also, the emissions from open coal piles being worked by bulldozers should be done using Table 11.9-2, Factors For Waste Coal Mining, AP42. These factors, even using TECO's assumptions for moisture content and control efficiency, show a net significant increase from this activity alone. Factors from this section of AP42 should be used whereever possible for emissions calculation.

2. The emission from burning of the additional coal must be taken into account in determining whether PSD/BACT applies to this modification.

mjh

Department of
Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

NOTICE OF DENIAL

CERTIFIED MAIL

Re Gannon Fuel Yard

Ms. Janice K. Taylor
Tampa Electric Company
P.O. Box 111
Tampa, FL 33601-0111

The applicant, Tampa Electric Company, applied to the Department of Environmental Protection (Department) on October !0, 1997, for a temporary permit condition (application attached).

The Department has permitting jurisdiction under Chapter 403.087, Florida Statutes (F.S.). The Department hereby denies the application on the basis that it would violate the throughput limit of Specific Condition 2. of the current operation permit AO29-216380, which is based on the throughput limit of Specific Condition 8 of construction permit AC29-114676.

A person whose substantial interests are affected by this denial may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Blvd., Mail Station 35, Tallahassee, FL 32399-3000, within 14 days of receipt of this permit denial. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

The Petition shall contain the following information;

(a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;

(b) A statement of how and when each petitioner received notice of the Department's action or proposed action;

(c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;

(d) A statement of the material facts disputed by Petitioner, if any;

(e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;

(f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and

(g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this denial. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of receipt of this notice in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent

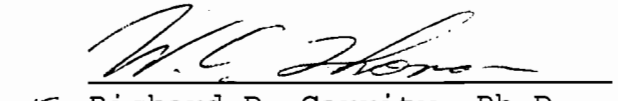
intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

This denial is final and effective on the date filed with the Clerk of the Department unless a petition is filed in accordance with the above paragraphs or unless a request for extension of time in which to file a petition is filed within the time specified for filing a petition and conforms to Rule 62-103.070, F.A.C. Upon timely filing of a petition or a request for an extension of time this permit denial will not be effective until further Order of the Department.

When the Order (Denial) is final, any party to the Order has the right to seek judicial review of the Order pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; 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 of Appeal must be filed within 30 days from the date the Final Order is filed with the Clerk of the Department.

Executed in Tampa, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION



for Richard D. Garrity, Ph.D.
Director of District Management

cc: HEPC
Douglas Beason, Esq.

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF DENIAL and all copies were mailed by certified mail before the close of business on _____ to the listed persons.

FILING AND ACKNOWLEDGMENT
FILED, on this date, pursuant to Section 120.52(11), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

_____ _____
Clerk Date

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TAMPA ELECTRIC

October 10, 1997

Mr. Gerald Kissell, P.E.
Air Permitting Supervisor
Florida Department of Environmental Protection
Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Via Hand Delivery

Re: Tampa Electric Company (TEC)
F.J. Gannon Station
Fuel Yard Annual Throughput

Dear Mr. Kissell:

As you are aware, TEC has submitted a permit application to modify the above referenced emission sources. As indicated on several occasions, including our telephone conversation of October 9, 1997 and the meeting of September 10, 1997, an urgency exists associated with this permit modification approval to facilitate F.J. Gannon Station's need for increased fuel throughput in 1997. Due to permitting delays, TEC apparently will not receive the approved permit modification in time to accommodate F.J. Gannon Station's 1997 throughput needs.

As a result, TEC is requesting a temporary permit condition valid through the end of 1997 to increase fuel yard throughput from 2.85 million to 3.185 million tons per year (tpy). TEC is not proposing to increase fugitive particulate matter emissions due to this increase in fuel throughput. Instead, this temporary operating scenario will include additional emission control, specifically the application of a chemical surfactant prior to or during fuel delivery to the Gannon site. As shown on the attached spreadsheet (signed and sealed by a Florida Professional Engineer), this additional particulate matter control results in lower potential emissions for the proposed temporary 3.185 million tpy scenario versus the currently approved 2.85 million tpy scenario.

TAMPA ELECTRIC COMPANY
P.O. BOX 111
TAMPA, FL 33601-0111
HILLSBOROUGH COUNTY 223-0800
OUTSIDE OF HILLSBOROUGH COUNTY 1-888-223-0800
HTTP://WWW.TECOENERGY.COM
AN EQUAL OPPORTUNITY COMPANY

TEC would be pleased to meet with you or your staff at your convenience to discuss this request. If you have any additional questions or comments, feel free to contact me at (813) 641-5039. Thank you for your timely assistance on this project. General Fax # 641-5281

Sincerely,

Janice K. Taylor
Senior Engineer
Environmental Planning

Attachment

EP\gm\JKT814

c: Mr. Jerry Campbell, P.E.-EPC
Via Hand Delivery

Mr. Sterlin Woodard, EPC
Via Hand Delivery

Mr. Richard Kirby, EPC
Via Hand Delivery

Mr. Al Linero-FDEP-Tallahassee
Via FedEx - Airbill No. 5060869310

TABLE 1. F.J. Gannon Station - Fuel Yard PM_{10} Emission Rate Comparison

Emission Source Description	Emission Point ID	Existing Emission Control Method	Existing Emission Control Efficiency (pct)	Existing PM_{10} Emission * (tpy)	Proposed Emission Control Method	Proposed Emission Control Efficiency (pct)	Proposed PM_{10} Emission† (tpy)
Barge to West Clamshell	FH-002	None	0	0.42	Dust Suppressant	95	0.37
West Clamshell to West Hopper	FH-005	Wind Shield	25	0.31	Dust Suppressant	95	0.28
West Hopper to Conveyor B	FH-009	Enclosure	50	0.21	Dust Suppressant and Enclosure	95	0.19
Conveyor B to Conveyor C	FH-011	Enclosure	50	0.21	Dust Suppressant and Enclosure	90	0.20
Conveyor C to Conveyor D1/D2	FH-012	Dust Suppressant and Enclosure	90	0.04	Dust Suppressant and Enclosure	90	0.05
Rail Car to Hopper	FH-013	Partial Enclosure	40	0.12	Dust Suppressant and Enclosure	95	0.09
Hopper to Conveyor L	FH-014	Enclosure	50	0.10	Dust Suppressant and Enclosure	95	0.08
Conveyor L to Conveyor D1/D2	FH-015	Dust Suppressant and Enclosure	95	0.01	Dust Suppressant and Enclosure	95	0.01
Conveyor D1/D2 to Conveyor M1/M2	FH-016/017	Dust Suppressant and Enclosure	90	0.06	Dust Suppressant and Enclosure	90	0.07
Conveyor M1/M2 to Conveyor E1/E2	FH-018/019	Dust Suppressant and Enclosure	90	0.06	Dust Suppressant and Enclosure	90	0.07
Conveyor E1/E2 to Storage Pile	FH-020/021	Dust Suppressant	70	0.18	Dust Suppressant	70	0.20
Fuel Storage	FH-022/023	Dust Suppressant	50	0.08	Dust Suppressant	50	0.08
Underground Reclaim to Conveyor F1/F2/F4	FH-024/025/027	Dust Suppressant and Enclosure	85	0.09	Dust Suppressant and Enclosure	85	0.10
Conveyor F1/F2/F4 to Conveyor G1/G2	FH-028/029/031	Dust Suppressant and Enclosure	90	0.06	Dust Suppressant and Enclosure	90	0.07
Conveyor G1/G2 to Hammermill Crusher 1/2	FH-032/033	Dust Suppressant and Enclosure	90	0.06	Dust Suppressant and Enclosure	90	0.07
Hammermill Crusher 1/2 to Conveyor H1/H2	FH-034/035	Dust Suppressant and Enclosure	90	0.06	Dust Suppressant and Enclosure	90	0.07
Conveyors H1/H2 to Conveyors J1/J2 Conveyors J1/J2 to Bunkers	FH-036 - FH-041	Rotoclones	75	2.97	Rotoclones	75	2.97
Storage Pile Maintenance	FH-044	Dust Suppressant	50	10.86	Dust Suppressant	50	10.86
Total				15.90			15.83

*PM_{10} emissions based on handling 2,850,000 tons of coal in 1997; 1,950,000 tons via barge delivery and 900,000 tons via rail delivery.

†PM_{10} emissions based on handling 3,185,000 tons of coal in 1997; 1,754,000 tons via barge delivery through October 10, 1997; 455,000 tons via barge delivery from October 11 through December 31, 1997; 724,000 tons via rail delivery through October 10, 1997; and 252,000 tons via rail delivery from October 11 through December 31, 1997.

Note: PM_{10} emissions calculated using the emission algorithms previously submitted with the original application to amend the fuel yard operating permit dated June 30, 1997, and in the two responses to agency comments dated August 20 and September 24, 1997.

Professional Engineer Statement:

I, the undersigned, hereby certify that, to the best of my knowledge, any emission estimates reported or relied on in this document are true, accurate, and complete and are based on reasonable techniques available for calculating emissions.

Thomas W. Davis

Signature

10/10/97

Date

Professional Engineer Name: Thomas W. Davis
Registration Number: 36777

Professional Engineer Mailing Address:
Organization/Firm: Environmental Consulting & Technology, Inc.
Street Address: 3701 NW 98th Street
City: Gainesville
State: Florida
Zip Code: 32606

Professional Engineer Telephone Numbers:
Telephone: (352) 332-0444
Fax: (352) 332-7622

TAMPA ELECTRIC

October 24, 1997

Mr. A. A. Linero, P.E., Administrator
New Source Review Section
Florida Department of Environmental Protection
Bureau of Air Regulation
111 S. Magnolia Drive, Suite 4
Tallahassee, Florida 32301

Via FedEx
Airbill No. 5060869354

Re: Tampa Electric Company
Gannon Station
Fuel Yard Modification Construction Permit Application
Application Reference No. 0570040-006-AC

Dear Mr. Linero:

Based on your telephone conversation with Janice Taylor on Tuesday, October 21, 1997, enclosed please find copies of the above submittal and subsequent Responses to Agency Comments.

If you have any additional questions, please contact me at (813) 641-5034.

Sincerely,

Theresa J.L. Watley
Consulting Engineer
Environmental Planning

EP\gm\TJLW562

Enclosure

TAMPA ELECTRIC COMPANY
P.O. BOX 111
TAMPA, FL 33601-0111
HILLSBOROUGH COUNTY 223-0800
OUTSIDE OF HILLSBOROUGH COUNTY 1-888-223-0800
HTTP://WWW.TECOENERGY.COM
AN EQUAL OPPORTUNITY COMPANY

TAMPA ELECTRIC

October 10, 1997

Mr. Gerald Kissell, P.E.
Air Permitting Supervisor
Florida Department of Environmental Protection
Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Via Hand Delivery

Re: Tampa Electric Company (TEC)
F.J. Gannon Station
Fuel Yard Annual Throughput

Dear Mr. Kissell:

As you are aware, TEC has submitted a permit application to modify the above referenced emission sources. As indicated on several occasions, including our telephone conversation of October 9, 1997 and the meeting of September 10, 1997, an urgency exists associated with this permit modification approval to facilitate F.J. Gannon Station's need for increased fuel throughput in 1997. Due to permitting delays, TEC apparently will not receive the approved permit modification in time to accommodate F.J. Gannon Station's 1997 throughput needs.

As a result, TEC is requesting a temporary permit condition valid through the end of 1997 to increase fuel yard throughput from 2.85 million to 3.185 million tons per year (tpy). TEC is not proposing to increase fugitive particulate matter emissions due to this increase in fuel throughput. Instead, this temporary operating scenario will include additional emission control, specifically the application of a chemical surfactant prior to or during fuel delivery to the Gannon site. As shown on the attached spreadsheet (signed and sealed by a Florida Professional Engineer), this additional particulate matter control results in lower potential emissions for the proposed temporary 3.185 million tpy scenario versus the currently approved 2.85 million tpy scenario.

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OCT 13 1997
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AIR REGULATION

TEC would be pleased to meet with you or your staff at your convenience to discuss this request. If you have any additional questions or comments, feel free to contact me at (813) 641-5039. Thank you for your timely assistance on this project.

Sincerely,

Janice K. Taylor
Senior Engineer
Environmental Planning

Attachment

EP\gm\JKT814

c: Mr. Jerry Campbell, P.E.-EPC
Via Hand Delivery

Mr. Sterlin Woodard, EPC
Via Hand Delivery

Mr. Richard Kirby, EPC
Via Hand Delivery

Mr. Al Linero-FDEP-Tallahassee
Via FedEx - Airbill No. 5060869310

TABLE 1. F.J. Gannon Station - Fuel Yard PM_{10} Emission Rate Comparison

Emission Source Description	Emission Point ID	Existing Emission Control Method	Existing Emission Control Efficiency (pct)	Existing PM_{10} Emission * (tpy)	Proposed Emission Control Method	Proposed Emission Control Efficiency (pct)	Proposed PM_{10} Emission† (tpy)
Barge to West Clamshell	FH-002	None	0	0.42	Dust Suppressant	95	0.37
West Clamshell to West Hopper	FH-005	Wind Shield	25	0.31	Dust Suppressant	95	0.28
West Hopper to Conveyor B	FH-009	Enclosure	50	0.21	Dust Suppressant and Enclosure	95	0.19
Conveyor B to Conveyor C	FH-011	Enclosure	50	0.21	Dust Suppressant and Enclosure	90	0.20
Conveyor C to Conveyor D1/D2	FH-012	Dust Suppressant and Enclosure	90	0.04	Dust Suppressant and Enclosure	90	0.05
Rail Car to Hopper	FH-013	Partial Enclosure	40	0.12	Dust Suppressant and Enclosure	95	0.09
Hopper to Conveyor L	FH-014	Enclosure	50	0.10	Dust Suppressant and Enclosure	95	0.08
Conveyor L to Conveyor D1/D2	FH-015	Dust Suppressant and Enclosure	95	0.01	Dust Suppressant and Enclosure	95	0.01
Conveyor D1/D2 to Conveyor M1/M2	FH-016/017	Dust Suppressant and Enclosure	90	0.06	Dust Suppressant and Enclosure	90	0.07
Conveyor M1/M2 to Conveyor E1/E2	FH-018/019	Dust Suppressant and Enclosure	90	0.06	Dust Suppressant and Enclosure	90	0.07
Conveyor E1/E2 to Storage Pile	FH-020/021	Dust Suppressant	70	0.18	Dust Suppressant	70	0.20
Fuel Storage	FH-022/023	Dust Suppressant	50	0.08	Dust Suppressant	50	0.08
Underground Reclaim to Conveyor F1/F2/F4	FH-024/025/027	Dust Suppressant and Enclosure	85	0.09	Dust Suppressant and Enclosure	85	0.10
Conveyor F1/F2/F4 to Conveyor G1/G2	FH-028/029/031	Dust Suppressant and Enclosure	90	0.06	Dust Suppressant and Enclosure	90	0.07
Conveyor G1/G2 to Hammermill Crusher 1/2	FH-032/033	Dust Suppressant and Enclosure	90	0.06	Dust Suppressant and Enclosure	90	0.07
Hammermill Crusher 1/2 to Conveyor H1/H2	FH-034/035	Dust Suppressant and Enclosure	90	0.06	Dust Suppressant and Enclosure	90	0.07
Conveyors H1/H2 to Conveyors J1/J2 Conveyors J1/J2 to Bunkers	FH-036 - FH-041	Rotoclones	75	2.97	Rotoclones	75	2.97
Storage Pile Maintenance	FH-044	Dust Suppressant	50	10.86	Dust Suppressant	50	10.86
Total				15.90			15.83

*PM_{10} emissions based on handling 2,850,000 tons of coal in 1997; 1,950,000 tons via barge delivery and 900,000 tons via rail delivery.

†PM_{10} emissions based on handling 3,185,000 tons of coal in 1997; 1,754,000 tons via barge delivery through October 10, 1997; 455,000 tons via barge delivery from October 11 through December 31, 1997; 724,000 tons via rail delivery through October 10, 1997; and 252,000 tons via rail delivery from October 11 through December 31, 1997.

Note: PM_{10} emissions calculated using the emission algorithms previously submitted with the original application to amend the fuel yard operating permit dated June 30, 1997, and in the two responses to agency comments dated August 20 and September 24, 1997.

Professional Engineer Statement:
I, the undersigned, hereby certify that, to the best of my knowledge, any emission estimates reported or relied on in this document are true, accurate, and complete and are based on reasonable techniques available for calculating emissions.

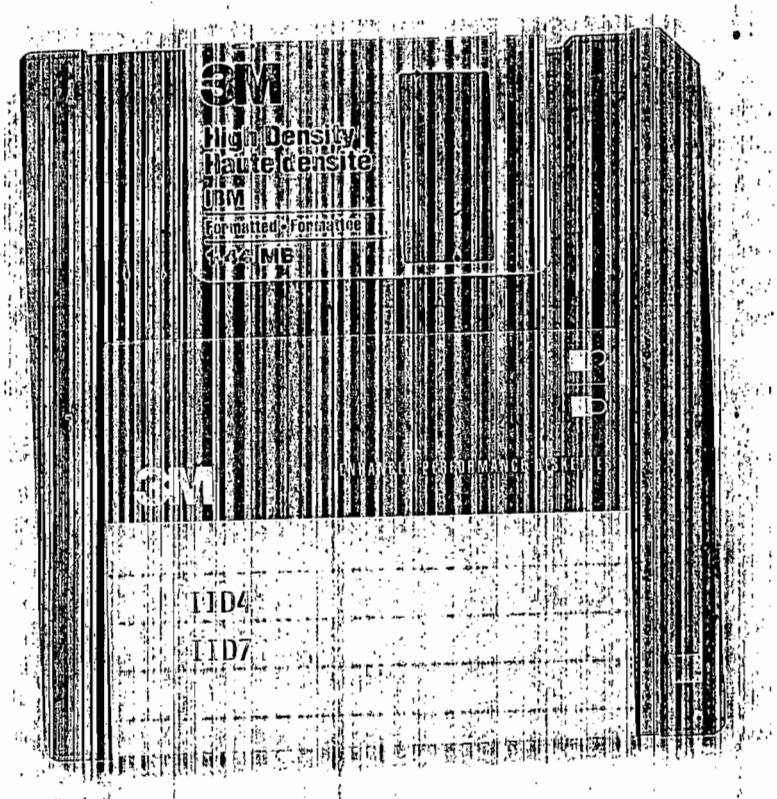
Thomas W. Davis
Signature

10/10/97
Date

Professional Engineer Name: Thomas W. Davis
Registration Number: 36777

Professional Engineer Mailing Address:
Organization/Firm: Environmental Consulting & Technology, Inc.
Street Address: 3701 NW 98th Street
City: Gainesville
State: Florida
Zip Code: 32606

Professional Engineer Telephone Numbers:
Telephone: (352) 332-0444
Fax: (352) 332-7622



State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

For Routing To Other Than The Addressee
To: B T — Location:
To: T D — Location:
To: C F — Location:
From: — Date:
To file

Interoffice Memorandum

TO: Dale Twachtmann

FROM: Steve Smallwood

DATE: February 6, 1990

SUBJ: TECO Variance

The Tampa Electric Company (TECO) has petitioned for a two year variance from the requirements of Florida Administrative Code (F.A.C.) Rule 17-2.210(2), Permit requirement; 17-2.610(2), General Visible Emission Standards of 20% opacity; and 17-2.650(2)(c)12.b, Emission Limitations for Miscellaneous Manufacturing Process Operations (5% opacity or 98% control). The petition for the variance has been reviewed by the Division of Air Resources Management, DER's Southwest District Office, and the Hillsborough County Environmental Protection Commission personnel.

TECO's Big Bend and Gannon Generating Stations have boilers which are equipped with slag tank vents to prevent pressure build up and are a necessary safety measure. The slag tank vents have not been previously permitted and do not meet the emission limitations required by F.A.C. Chapter 17-2.

Under the Florida rules the vents would require the installation of control equipment. Since the boilers are the only such boilers in operation in the United States, TECO will need to custom design, test, fabricate and install the control equipment. TECO has requested a two year period to complete such a task.

With your concurrence we would like to proceed with a public hearing on the intent to issue the variance. Please advise.

SS/plm

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.

Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. ☐ Show to whom delivered, date, and addressee's address. *(Extra charge)*
2. ☐ Restricted Delivery *(Extra charge)*

3. Article Addressed to:
Mr. Jerry L. Williams
Tampa Electric Company
P. O. Box 111
Tampa, FL 33601-0111

4. Article Number
P 938 762 715

Type of Service:
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature — Address
X

6. Signature — Agent
X Paul Seifert

7. Date of Delivery
10/16/89

8. Addressee's Address *(ONLY if requested and fee paid)*

PS Form **3811**, Mar. 1988 * U.S.G.P.O. 1988-212-865 DOMESTIC RETURN RECEIPT

P 938 762 715

RECEIPT FOR CERTIFIED MAIL
NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

Sent to: Mr. Jerry L. Williams, TECO	
Street and No.: P. O. Box 111	
P.O., State and ZIP Code: Tampa, FL 33601-0111	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$
Postmark or Date: Mailed: 10-13-89 Vairance Request-Slag Tank Vents	

PS Form 3800, June 1985

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Bob Martinez, Governor Dale Twachtmann, Secretary John Shearer, Assistant Secretary

October 16, 1989

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Jerry L. Williams
Tampa Electric Company
P. O. Box 111
Tampa, Florida 33601-0111

Dear Mr. Williams:

Re: Variance Request for Slag Tank Vents

The Department has reviewed your letter dated April 7, 1989, and agrees with your plan in dealing with permitting the slag tank vents, but has deemed your variance request incomplete.

In accordance with the Florida Administrative Code (F.A.C.) Rule 17-103.100, Applications for Variance, you will need to address the requirements in (1)(f) and (1)(g) before the Department can process your petition.

If you have any questions, please call Syed Arif or Pradeep Raval at (904)488-1344, or write to me at the above address.

Sincerely,

C. H. Fancy, P.E.
Bureau of Air Regulation

CHF/PR/t

cc: B. Thomas, SW District
I. Choronenko, HCEPC

Pradeep - 11-7
Are you keeping a file on this?
NO PR Patty

exceptions may be served or filed, or the time within which any act is required to be performed, as provided by any rule or order of the Department, shall be computed in accordance with the Florida Rules of Civil Procedure.
Specific Authority: 120.53, F.S.
Law Implemented: 120.53, F.S.
History: Revised 10-20-73, Amended 2-6-78, 4-28-81, Formerly 17-1.16, Transferred from 17-1.32 and Amended 6-1-84.

17-103.090 Informal Conference.

(1) If the Department deems it advisable in reaching a prompt resolution of a controversy or dispute with a party or parties, it may arrange an informal conference between the party or parties and the Department. Unless otherwise specified, an informal conference shall be requested within ten (10) days of service of the initial pleading. An attempt shall be made to resolve the controversy or dispute in an amicable manner.

(2) A respondent's rights will not be adjudicated at such a conference, and the right to request a public hearing on the alleged violations or the orders for corrective action subsequently issued will not be affected by requesting and participating in an informal conference. The Department staff members participating in such informal conference shall file with the Department a report concerning matters covered in the informal conference. Unless otherwise specified, in writing, by the Department, a responsive pleading or demand for hearing shall be filed within ten (10) days from the completion of the informal conference, unless a longer time is provided by Rule 17-103.110, FAC, or Chapter 403, Florida Statutes. Failure to file responsive pleading or demand for hearing within that time period shall be deemed a waiver thereof.
Specific Authority: 120.53(1), F.S.
Law Implemented: 120.53(1), F.S.
History: Revised 10-20-73, Amended 2-6-78, Formerly 17-1.44, Transferred from 17-1.53 and Amended 6-1-84.

17-103.100 Petitions or Applications for Variances.

(1) A petition or application for a variance, pursuant to Section 403.201, Florida Statutes, of the Florida Air and Water Pollution Control Act, shall be in accordance with these rules. The petitioner or applicant shall address the factors listed in paragraphs (a) through (g) in the request. The Department shall review the petition within a reasonable period of time to determine if the petition is complete. If the Department determines the petition to be incomplete, the petitioner shall be afforded an opportunity to supply additional information before the Department evaluates the merits of the request.

(a) The statute or rule from which a variance is sought.

(b) The facts which show that a variance should be granted because of one of the reasons set forth in Section 403.201, Florida Statutes.

(c) The period of time for which the variance is sought, including the reasons and facts in support of the time period.

(d) The requirements which the petitioner can meet, including the date or time when the requirements will be met.

(e) The steps or measures the petitioner is taking to meet the

requirement from which the variance is sought. If the request is pursuant to Section 403.201(1)(b), F.S., the petitioner shall include a schedule when compliance will be achieved.

(f) The social, economic and environmental impacts on the applicant, residents of the area and of the state if the variance is granted.

(g) The social, economic and environmental impacts on the applicant, residents of the area and of the state if the variance is denied.

(2) Renewals of variances, pursuant to Section 403.201, Florida Statutes, shall be applied for in the same manner as for the initial variance.

(3) Variances shall be denied or granted at the discretion of the Secretary of the Department, except for variances submitted under the Florida Electrical Power Plant Siting Act, the Florida Transmission Line Siting Act or the Florida Industrial Siting Act, which shall be granted or denied at the discretion of the Governor and the Cabinet.

(4) The Department shall publish notice of intent in the Florida Administrative Weekly. The petitioner shall publish such notice in a newspaper of general circulation in the area affected by the proposed variance. Notice shall be in accordance with Rule 17-103.150, FAC, and shall read substantially as set forth in Rule 17-103.150(3), FAC.

(5) An application for a variance or exemption, pursuant to Section 403.854, Florida Statutes, of the Florida Safe Drinking Water Act, shall be in accordance with Section 17-22.09, Florida Administrative Code. The variance provisions of Section 403.201, Florida Statutes, do not apply to the Florida Safe Drinking Water Act or rules promulgated thereunder.

(6) Relief from Department rules may also be granted pursuant to other specific rules, such as, but not limited to, rules 17-3.031, 17-4.243, and 17-4.245, FAC.

Specific Authority: 120.53(1), F.S.
Law Implemented: 120.53(1), F.S.
History: New 2-6-78, Amended 7-8-82, Transferred from 17-1.57 and Amended 6-1-84.

17-103.110 Administrative Enforcement Actions.

(1) Notice of Violation.

(a) A notice of violation is an appropriate initial administrative pleading which may be issued by the Department when, after investigation, it has reason to believe that a person has, or is presently engaged in an activity in violation of the provisions of Chapters 403, 373, 376 or 253, Florida Statutes, or Department rules. Such notice shall be served on the respondent(s) by actual delivery to; service of process on, in accordance with Florida Rules of Civil Procedure; or by certified mail, return receipt requested; and shall identify the provision of law, rule, or Department permit alleged to have been violated, and shall include a brief statement of the facts constituting such alleged violation.

(b) A notice of violation shall be issued by the Secretary, Assistant Secretary or District Manager. Unless a responsive pleading and request for a Section 120.57 administrative hearing is filed within twenty (20) days after service of the notice, or as otherwise provided by Rule 17-103.090, FAC (Informal

F.J. GANNON STATION

FUEL YARD MODIFICATION CONSTRUCTION PERMIT APPLICATION

TECO

TAMPA ELECTRIC

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JUNE 1997

ADDENDUM
JUNE 1998

Supplemental Information

TAMPA ELECTRIC COMPANY - F.J. GANNON STATION
NO_x REDUCTION POLLUTION CONTROL PROJECT EVALUATION

BACKGROUND

Tampa Electric Company (TEC) operates the F.J. Gannon Station power plant and associated fuel yard in Tampa, Hillsborough County, Florida. In June 1997 (with subsequent submittals through December 1997), TEC submitted an air construction permit application to the Florida Department of Environmental Protection (FDEP) to increase the allowed coal throughput at the fuel yard from 2.85 to 3.77 million tons per calendar year (MMtpy). This throughput increase was requested to accommodate the use of high moisture/low heat content coals as the primary compliance strategy to reduce nitrogen oxides (NO_X) emissions from the six steam electric generating units designated as Gannon 1 through 6.

The FDEP Southwest District referred the application to the central FDEP office in Tallahassee for a determination regarding Prevention of Significant Deterioration (PSD) applicability prior to further processing. TEC maintains that the coal yard and steam generating units are separate entities with respect to existing operating permits and that the fuel yard permit conditions apply only to the fuel yard, not to the entire facility. Without conceding that the coal yard and steam generating units permit conditions are mutually applicable, TEC has presented this project to FDEP as a Pollution Control Project (PCP). As defined in 40 CFR 52.21(b)(32), a PCP is

> *Any activity or project undertaken at an existing electric steam generating unit for purposes of reducing emissions from such unit. Such activities and projects are limited to . . . an activity or project to accommodate switching to a fuel which is less polluting than the fuel in use prior to the activity or project, including, but not limited to natural gas or coal reburning, or the co-firing of natural gas and other fuel for the purpose of controlling emissions.*

Furthermore, in accordance with 40 CFR 52.21(b)(2)(iii)(h)

> *The addition, replacement or use of a pollution control project at an existing electric utility steam generating unit are exempt from review for PSD, unless the Department determines such addition, replacement, or use renders the unit less environmentally beneficial, or except (1) When the Administrator has reason to believe that the pollution control project would result in a significant net increase in representative actual annual emissions of any criteria pollutant over levels used for that source in the most recent air quality impact analysis in the area conducted for the purpose of title I if any and (2) The Administrator determines the increase will cause or contribute to a violation of any national ambient air quality standard or PSD increment, or visibility limitation.*

As such, the purpose of this document is to validate the applicability of the PSD PCP exemption for the proposed fuel yard project at F.J. Gannon Station. This validation is presented in accordance with the July 1994 EPA Guidance Document entitled "Pollution Control Projects and New Source Review (NSR) Applicability" by demonstrating the *net environmental benefit* of this PCP.

DESCRIPTION OF POLLUTION CONTROL PROJECT (PCP)

The F.J. Gannon Station PCP consists of utilizing and co-firing various blends of TEC standard coals with low- to medium-sulfur Powder River Basin (PRB) coals in Gannon Units 1 through 6. Table 1 presents average fuel quality data for the coals projected for use at F.J. Gannon Station. To compensate for the high moisture content/low heat content of these new coals, an increase in coal throughput is required to achieve an equivalent heat input rate, and the same unit generation capability, as achieved with TEC standard coals. This heat input equilibration is presented in Table 2, which indicates that a coal throughput of 3.3 million tons per calendar year is required at F.J. Gannon Station with the projected fuel usage. This projected fuel usage at F.J. Gannon Station is consistent with TEC's Phase II Acid Rain compliance plan and the F.J. Gannon Station Title V compliance plan.

As substantiated by many electric utilities across the country, the higher moisture content in PRB coal inhibits NO_X formation during combustion, resulting in lower NO_X emissions. As presented in Table 3, a 15,099 ton per year reduction in NO_X emissions is projected as a result of this PCP. This result is based on TEC-conducted preliminary engineering studies and TEC to-date operating experience. In addition, particulate matter (PM) emissions are not expected to increase, as indicated in Table because of the moderate ash content in the projected coals. However, as presented in Table 5, sulfur dioxide (SO_2) emissions are projected to increase 1,798 tons per year over the 1996-1997 representative actual annual emissions or 8,730 tons per year over the 1995-1996 representative actual annual emissions. This increase results from the projected coal blending necessary to maintain the Acid Rain and Title V compliance plans.

According to the U.S. Environmental Protection Agency (EPA) analysis of the PCP rule at FR Vol. 57, No. 140, pages 32320-32321

> *Thus EPA is today adopting revisions to its PSD and nonattainment regulations for the addition, replacement or use at an electric steam generating unit of any system or device whose primary function is the reduction of pollutants (including the switching to a less-polluting fuel where the primary purpose of the switch is the reduction of air pollutants).*

In establishing that the primary purpose of the fuel switch is to reduce NO_X emissions, TEC's project qualifies as a PCP. Furthermore, TEC believes that PCP qualification remains in place even though SO_2 emissions are projected to increase. Per the EPA analysis:

Several commentators pointed out that a pollution control project that reduces one pollutant should not be allowed to increase emissions of another pollutant if that increase will cause or exacerbate a different pollution problem. . . . Although a pollution control project could theoretically cause a small collateral increase in some emissions, it will substantially reduce emissions of other pollutants. In recognition of this, the rule provides for a case-by-case assessment of the pollution control project's net emissions and overall impact on the environment.

Therefore, TEC understands that the criteria which FDEP must follow to completely validate the PCP applicability are clear. The decrease in NO_X or PM emissions must be substantial and the collateral increase in SO_2 emissions must be inconsequential.

NET EMISSIONS ANALYSIS

Evaluation of the merits of the project is primarily based on a comparison of future representative actual annual emissions after implementation of the PCP with past actual emissions as presented in Tables 2, 3, 4, and 5. But, the connection of F.J. Gannon Station PCP with other TEC Acid Rain compliance activities cannot be overlooked.

On May 15, 1998, TEC filed a petition with the Florida Public Service Commission (FPSC) for approval of the Big Bend Station Units 1 and 2 flue gas desulfurization (FDG) scrubber project. The TEC Phase II Clean Air Act Compliance Document was filed with FPSC on May 19, 1998. In these documents, TEC presents the information necessary to conclude that the Big Bend Station Units 1 and 2 FGD project is the best alternative for Phase II SO_2 compliance for the entire TEC system. As such, and in accordance with the Acid Rain regulations, the SO_2 allowances gained at Big Bend Station will be "bubbled" for SO_2 allowance credit at F.J. Gannon Station. Consistent with these Title IV Acid Rain protocols, FDEP should jointly evaluate all changes in SO_2 emissions from Big Bend and F.J. Gannon Stations. In examining the overall picture, TEC is clearly reducing total SO_2 emissions from these two proximately located facilities.

CONCLUSION

Based on the foregoing analysis, TEC believes that FDEP should conclude:

- The use of PRB coals blended with other standard coals will provide a substantial decrease in NO_x emissions without causing a substantial increase in the emissions of any other regulated pollutant,
- The fuel yard throughput increase is an activity necessary to accommodate switching to a fuel which is less polluting than the fuel in use prior to the project, and
- The proposed changes constitute a Pollution Control Project (PCP) that provides a *net environmental benefit*. Hence, the PSD PCP exemption is applicable.

Table 1. F.J. Gannon Station - PCP Fuel Quality - Phase II Compliance Plan

	PRB Low	PRB Med.	Std. A	Std. B
Heat Input, Btu/lb	8773.0	8350.0	12604.0	11938.0
Sulfur, lb/MMBtu	0.9	2.2	3.6	2.1
Ash, lb/MMBtu	5.7	7.8	6.6	6.5

Table 2. F.J. Gannon Station - PCP Projected Coal Usage - Phase II Compliance Plan

Unit	1995 Actual			1996 Actual			1995/1996 Average		
	Coal Usage (tons)	Coal Heat Content (Btu/lb)	Total Heat Input (Btu)	Coal Usage (tons)	Coal Heat Content (Btu/lb)	Total Heat Input (Btu)	Coal Usage (tons/yr)	Coal Heat Content (Btu/lb)	Total Heat Input (Btu/yr)
1	186,212	12,845	4.78E+12	265,722	11,718	6.23E+12	225,967	12,182	5.51E+12
2	186,383	12,845	4.79E+12	251,464	11,718	5.89E+12	218,924	12,198	5.34E+12
3	274,919	12,845	7.06E+12	298,202	11,718	6.99E+12	286,561	12,259	7.03E+12
4	463,970	12,845	1.19E+13	486,874	11,718	1.14E+13	475,422	12,268	1.17E+13
5	519,780	12,845	1.34E+13	574,584	11,718	1.35E+13	547,182	12,253	1.34E+13
6	897,070	12,845	2.30E+13	892,742	11,718	2.09E+13	894,906	12,283	2.20E+13
Total or Average	2,528,334	12,845	6.50E+13	2,769,588	11,718	6.49E+13	2,648,961	12,256	6.49E+13

Unit	Projected at Maximum Fuelyard Throughput			Pollution Prevention Coal Throughput		
	Coal Usage (tons)	Coal Heat Content (Btu/lb)	Total Heat Input (Btu)	Coal Usage (tons)	Coal Heat Content (Btu/lb)	Total Heat Input (Btu)
1	243,116	12,182	5.92E+12	325,465	9,100	5.92E+12
2	235,538	12,198	5.75E+12	315,718	9,100	5.75E+12
3	308,309	12,259	7.56E+12	409,695	9,225	7.56E+12
4	511,503	12,268	1.26E+13	680,226	9,225	1.26E+13
5	588,710	12,253	1.44E+13	596,167	12,100	1.44E+13
6	962,824	12,283	2.37E+13	977,374	12,100	2.37E+13
Total or Average	2,850,000	12,256	6.99E+13	3,304,646	10,570	6.99E+13

Table 3. F.J. Gannon Station - PCP NOx Emission Comparison - Phase II Compliance Plan

Unit	Future Projected NOx Emission					Past Actual NOx Emission			NOx Emission Change
	Coal Usage (tons)	Coal Heat Content (Btu/lb)	Total Heat Input (Btu)	Emission Rate (lb/MMBtu)	Annual Emisions (tpy)	1995 (tpy)	1996 (tpy)	Average (tpy)	(tpy)
1	325,465	9,100	5.92E+12	1.10	3,258	3,445	4,916	4,181	(923)
2	315,718	9,100	5.75E+12	1.10	3,160	3,448	4,618	4,033	(873)
3	409,695	9,225	7.56E+12	0.92	3,477	5,086	5,517	5,302	(1,824)
4	680,226	9,225	1.26E+13	0.92	5,773	8,583	9,007	8,795	(3,022)
5	596,167	12,100	1.44E+13	0.85	6,132	6,887	10,630	8,759	(2,627)
6	977,374	12,100	2.37E+13	0.85	10,052	15,250	16,516	15,883	(5,831)
Total or Average	3,304,646	10,570	6.99E+13	N/A	31,852	42,699	51,204	46,952	(15,099)

Past Actual NOx Emission			NOx Emission Change
1996 (tpy)	1997 (tpy)	Average (tpy)	(tpy)
4,916	3,235	4,076	(818)
4,618	3,850	4,234	(1,074)
5,517	5,093	5,305	(1,828)
9,007	5,572	7,290	(1,516)
10,630	4,515	7,573	(1,441)
16,516	10,929	13,723	(3,670)
51,204	33,194	42,199	(10,347)

Table 4. F.J. Gannon Station - PCP PM/PM10 Emission Comparison - Phase II Compliance Plan

Unit	Future Projected PM/PM10 Emission						Past Actual PM/PM10 Emission			PM/PM10 Emission Change (tpy)
	Coal Usage (tons)	Coal Heat Content (Btu/lb)	Total Heat Input (Btu)	Coal Ash Content 1 (lb/MMBtu)	Control Efficiency (pct)	Annual Emisions (tpy)	1995 (tpy)	1996 (tpy)	Average (tpy)	
1	325,465	9,100	5.92E+12	7.3	99.09	59	46	60	53	6
2	315,718	9,100	5.75E+12	7.3	99.09	57	92	112	102	(45)
3	409,695	9,225	7.56E+12	6.4	99.07	68	102	104	103	(35)
4	680,226	9,225	1.26E+13	6.4	99.05	115	271	326	299	(183)
5	596,167	12,100	1.44E+13	6.5	98.50	491	193	212	203	288
6	977,374	12,100	2.37E+13	6.5	98.50	805	1,116	1,109	1,113	(308)
Total or Average	3,304,646	10,570	6.99E+13	N/A	N/A	1,595	1,820	1,923	1,872	(277)

1Emission rates for Units 1 through 4 (cyclone boilers) are based on 30 percent fly ash and 70 percent slag.
Emission rates for Units 5 and 6 (wet bottom turbo-furnace boilers) are based on 70 percent fly ash and 30 percent slag

Past Actual PM/PM10 Emission			PM/PM10 Emission Change (tpy)
1996 (tpy)	1997 (tpy)	Average (tpy)	
60	105	83	(24)
112	117	115	(58)
104	150	127	(59)
326	358	342	(227)
212	392	302	189
1,109	818	964	(159)
1,923	1,940	1,932	(338)

Table 5. F.J. Gannon Station - PCP SO2 Emission Comparison - Phase II Compliance Plan

Unit	Future Projected SO2 Emission					Past Actual SO2 Emission			SO2 Emission Change
	Coal Usage (tons)	Coal Heat Content (Btu/lb)	Total Heat Input (Btu)	Emission Rate (lb/MMBtu)	Annual Emisions (tpy)	1995 (tpy)	1996 (tpy)	Average (tpy)	(tpy)
1	325,465	9,100	5.92E+12	1.9	5,627	4,021	5,480	4,751	877
2	315,718	9,100	5.75E+12	1.9	5,459	3,918	5,058	4,488	971
3	409,695	9,225	7.56E+12	1.6	6,047	5,925	6,400	6,163	(115)
4	680,226	9,225	1.26E+13	1.6	10,040	9,955	9,849	9,902	138
5	596,167	12,100	1.44E+13	2.0	14,427	10,374	12,968	11,671	2,756
6	977,374	12,100	2.37E+13	2.0	23,652	18,797	20,301	19,549	4,103
Total or Average	3,304,646	10,570	6.99E+13	N/A	65,253	52,990	60,056	56,523	8,730

Station SO2 Rate	1.9

Based on Title IV Annual Average

Past Actual SO2 Emission			SO2 Emission Change
1996 (tpy)	1997 (tpy)	Average (tpy)	(tpy)
5,480	5,344	5,412	215
5,058	7,771	6,415	(956)
6,400	9,772	8,086	(2,039)
9,849	10,383	10,116	(76)
12,968	10,753	11,861	2,566
20,301	22,829	21,565	2,087
60,056	66,852	63,454	1,798

Signature Pages

Owner/Authorized Representative or Responsible Official

1. Name and Title of Owner/Authorized Representative or Responsible Official :

Name : Charles R. Black
Title : Vice President Energy Supply

2. Owner or Authorized Representative or Responsible Official Mailing Address :

Organization/Firm : Tampa Electric Company
Street Address : P.O. Box 111
City : Tampa
State : FL Zip Code : 33601-0111

3. Owner/Authorized Representative or Responsible Official Telephone Numbers :

Telephone : (813)228-1767 Fax : (813)228-4290

4. Owner/Authorized Representative or Responsible Official Statement :

I, the undersigned, am the owner or authorized representative of the non-Title V source addressed in this Application for Air Permit or the responsible official, as defined in Rule 62-210.200, F.A.C., of the Title V source addressed in this application, whichever is applicable. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof. I understand that a permit, if granted by the Department, cannot be transferred without authorization from the Department, and I will promptly notify the Department upon sale or legal transfer of any permitted emissions units.*

C R Black
Signature

6/8/98
Date

* Attach letter of authorization if not currently on file.

Application Processing Fee

Check one :

[X] Attached - Amount : $250.00 [ ] Not Applicable.

Construction/Modification Information

1. Description of Proposed Project or Alterations :

   1. Increase fuel yard throughput from 2,850,000 tpy to 3,304,646 tpy.
   2. Standardize all barge and rail unloading belt speeds at 2,300 tph.
   3. Add equipment to handle alternate fuel at 362,025 tpy and 400 tph.

2. Projected or Actual Date of Commencement of Construction : 01-Sep-1997

3. Projected Date of Completion of Construction : 31-Aug-1998

Professional Engineer Certification

1. Professional Engineer Name : Thomas W. Davis
   Registration Number : 36777

2. Professional Engineer Mailing Address :

   Organization/Firm : Env. Consulting & Technology, Inc.
   Street Address : 3701 NW 98th Street
   City : Gainesville State : FL Zip Code : 32606-____

3. Professional Engineer Telephone Numbers :
   Telephone : (352)332-0444 Fax : (352)332-6722

4. Professional Engineer Statement :

I, the undersigned, hereby certified, except as particularly noted herein, that :*

(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollutant control equipment described in this Application for Air Permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and

(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.

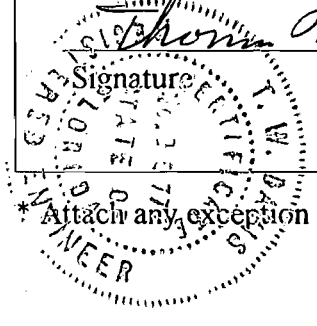
If the purpose of this application is to obtain a Title V source air operation permit (check here [ ] if so), I further certify that each emissions unit described in this Application for Air Permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance schedule is submitted with this application.

If the purpose of this application is to obtain an air construction permit for one or more proposed new or modified emissions units (check here [ ] if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.

If the purpose of this application is to obtain an initial air operation permit or operation permi revision for one or more newly constructed or modified emissions units (check here [ ] if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.

Thomas M. Davis — 6/6/98

Signature — Date



* Attach any exception to certification statement.

Revised Application Pages

C. EMISSIONS UNIT DETAIL INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Information Section 1
Solid Fuel Bunkers (all solid fuel-fired units)

Emissions Unit Details

1. Initial Startup Date :		
2. Long-term Reserve Shutdown Date :		
3. Package Unit : Manufacturer :		Model Number :
4. Generator Nameplate Rating :	MW	
5. Incinerator Information : Dwell Temperature : Dwell Time : Incinerator Afterburner Temperature :		 Degrees Fahrenheit Seconds Degrees Fahrenheit

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate :	mmBtu/hr	
2. Maximum Incinerator Rate :	lb/hr	tons/day
3. Maximum Process or Throughput Rate :	3666671	tons per year
4. Maximum Production Rate :		
5. Operating Capacity Comment :		

Emissions Unit Operating Schedule

Requested Maximum Operating Schedule :	
24 hours/day	7 days/week
52 weeks/year	8,760 hours/year

F. SEGMENT (PROCESS/FUEL) INFORMATION

Emissions Unit Information Section 1

Solid Fuel Bunkers (all solid fuel-fired units)

Segment Description and Rate : Segment 1

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) : Fuel handling	
2. Source Classification Code (SCC) : 3-05-101-03	
3. SCC Units : Tons Transferred Or Handled	
4. Maximum Hourly Rate : 1,600.00	5. Maximum Annual Rate : 3,666,671.00
6. Estimated Annual Activity Factor :	
7. Maximum Percent Sulfur :	8. Maximum Percent Ash :
9. Million Btu per SCC Unit :	
10. Segment Comment : Maximum Hourly Rate (Field 4) is tons per hour per bunker. Bunkers are not filled simultaneously. Maximum Annual Rate (Field 5) is total for all bunkers.	

C. EMISSIONS UNIT DETAIL INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Information Section 2
Solid Fuel Handling and Storage (all sources)

Emissions Unit Details

1. Initial Startup Date :		
2. Long-term Reserve Shutdown Date :		
3. Package Unit : Manufacturer :		Model Number :
4. Generator Nameplate Rating :	MW	
5. Incinerator Information : Dwell Temperature : Dwell Time : Incinerator Afterburner Temperature :		 Degrees Fahrenheit Seconds Degrees Fahrenheit

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate :	mmBtu/hr	
2. Maximum Incinerator Rate :	lb/hr	tons/day
3. Maximum Process or Throughput Rate :	3666671	tons per year
4. Maximum Production Rate :		
5. Operating Capacity Comment : Solid fuel handling rate.		

Emissions Unit Operating Schedule

Requested Maximum Operating Schedule :		
	24 hours/day	7 days/week
	52 weeks/year	8,760 hours/year

F. SEGMENT (PROCESS/FUEL) INFORMATION

Emissions Unit Information Section 2

Solid Fuel Handling and Storage (all sources)

Segment Description and Rate : Segment 1

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) : Solid fuel handling and storage	
2. Source Classification Code (SCC) : 3-05-101-03	
3. SCC Units : Tons Transferred Or Handled	
4. Maximum Hourly Rate : 4,600.00	5. Maximum Annual Rate : 3,304,646.00
6. Estimated Annual Activity Factor :	
7. Maximum Percent Sulfur :	8. Maximum Percent Ash :
9. Million Btu per SCC Unit :	
10. Segment Comment : Maximum hourly rate may be different for some fuel handling equipment. The Maximum Hourly Rate (Field 4) of 4,600 tph is the highest for any one fuel handling operation (i.e., two parallel conveyor belts operating simultaneously). See DOC.II.E.6 for detailed maximum hourly rates for each belt conveyor.	

TECO

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March 31, 1998

Mr. G.J. Kissel, P.E.
Air Permitting Supervisor
Department of Environmental Protection
Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Via Facsimile and U.S. Mail

Mr. A.A. Linero, P.E., Administrator
New Source Review Section
Department of Environmental Protection
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Via Facsimile and U.S. Mail

Re: Tampa Electric Company (TEC) - F.J. Gannon Station
Fuel Yard Modification Construction Permit Application
Application Reference No. 05700040-006-AC

Dear Mr. Kissel and Mr. Linero:

On December 29, 1997 we submitted our last Response to Agency Comments regarding the above referenced permit application. We then received a letter dated January 14, 1998 from Mr. Kissel outlining the protocol that would be implemented for TEC's fuel yard and RDF permitting. On January 26, 1998, we met with Mr. Linero at our TEC facility in Apollo Beach. At this meeting, Mr. Linero requested additional information to give the Department reasonable assurance that our proposed fuel yard modifications constituted a Pollution Control Project.

While it is TEC's intention to successfully obtain the desired permit modifications, we have been delayed in compiling the needed information due to our efforts in resolving some Title V issues at Gannon Station. Therefore, we are requesting a 60-day extension of your 90-day permit application review period.

Thanks for your cooperation. If you have any questions, please feel free to give me a call at (813) 641-5034.

Sincerely,

Theresa J.L. Watley

Theresa J.L. Watley
Consulting Engineer
Environmental Planning

cc: L. Anderson, BAR

EP\gm\TJLW586

TAMPA ELECTRIC COMPANY
P. O. BOX 111 TAMPA, FL 33601-0111
(813) 228-4111

Memorandum

Florida Department of Environmental Protection

TO: Lennon Anderson

FROM: Al Linero

DATE: January 12, 1998

SUBJECT: TECO Gannon Coal Yard Project

Attached is a copy of the latest TECO submittal. I got it today, but the District apparently got a copy December 30 or 31, so the clock has been running. As of now, we only need to make a PSD Applicability Determination. If PSD applies, then we will process this permit here. If it does not apply, the SWD will finish processing the application. Then you will likely need to update the Title V permit at a future date.

In order to make the determination, I'd like your help on the following:

- We need a table showing the permitted PM, SO_2, NO_X emission limits for all Gannon Units. Maybe you have that from the Title V draft permit.
- A copy of the coal conversion order. There are references in the file. I don't believe I have seen a copy of it. Maybe you can contact Hillsborough EPC or the SWD and see if either has a copy.
- Other reports by EPA or the FEA regarding the justification for TECO to convert to coal. These could be in the District files if they are not in our own files.
- Any documentation that shows why TECO needed to get a permit which did not trigger PSD for the coal yard at the time they were ordered (if they were in fact ordered) to switch to coal.
- Typical information on heat and ash content of Powder River Basin coal and any reasons to believe emissions of PM should or should not increase. Information on ESP performance would help too since there is a correlation between fuel sulfur content and PM collection efficiency.

I will ask TECO for the same information, but I'd like to have it from our own sources if possible. This will allow me to process this action quickly. Let me have whatever you can put together by this Friday. I plan to meet with TECO very soon to let them know how things look for them. Thanks.

cc: Scott Sheplak
Clair Fancy
Cindy Phillips

TAMPA ELECTRIC

December 29, 1997

Mr. Gerald J. Kissel, P.E.
Air Permitting Supervisor
Florida Department of Environmental Protection (FDEP)
Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Via FedEx
Airbill No. 800926221000

Re: Tampa Electric Company (TEC) - F.J. Gannon Station
Fuel Yard Modification Construction Permit Application
Response to Agency Comments
Application Reference No. 0570040-006-AC

Dear Mr. Kissel:

Enclosed are three (3) spiral-bound signed and sealed copies of TEC's responses to agency comments regarding the above referenced construction permit application, and one (1) loose copy, suitable for incorporation with the previously submitted binder copy, to assist with your review. Also, as per your request, one (1) signed and sealed copy has been sent to both Mr. Rick Kirby, P.E. at the Environmental Protection Commission of Hillsborough County (EPCHC), and Mr. Al Linero, P.E. at the Florida Department of Environmental Protection (FDEP) - New Source Review Section - Tallahassee.

This submission is in response to your incompleteness letter dated October 24, 1997, that requested additional information to facilitate a Prevention of Significant Deterioration (PSD) applicability review and to continue processing this application. TEC has responded to each of the agency comments in detail; however, we again note that because the PSD applicability issue was not identified in the original letter of incompleteness, this issue should not be considered in determining the completeness of this permit application.

Please note that this set of responses reflects a significant change in TEC's annual throughput request. Based on the exchange of information at our meeting with FDEP and EPCHC in Tallahassee on November 3, 1997 and a re-examination of our projected load and compliance fuel usage, TEC has

TAMPA ELECTRIC COMPANY
P.O. BOX 111
TAMPA, FL 33601-0111
HILLSBOROUGH COUNTY 223-0800
OUTSIDE OF HILLSBOROUGH COUNTY 1-888-223-0800
HTTP://WWW.TECOENERGY.COM
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amended our requested coal throughput to 3.77 million tons per year (tpy). This change represents a decrease of 230,000 tpy from the 4.00 million tpy requested in the initial submittal. As such, revisions of the pertinent pages from the permit application are included in this submittal.

TEC would be pleased to meet with you or your staff at your convenience to discuss these responses in detail. If you have any additional questions or comments, feel free to contact me at (813) 641-5034.

Thank you for your assistance on this project.

Sincerely,

Theresa J.L. Watley
Consulting Engineer
Environmental Planning

EP\gm\TJLW580

Attachments

c/enc: Mr. Richard Kirby - EPCHC
Mr. Al Linero - FDEP Tallahassee

F.J. GANNON STATION

FUEL YARD MODIFICATION CONSTRUCTION PERMIT APPLICATION

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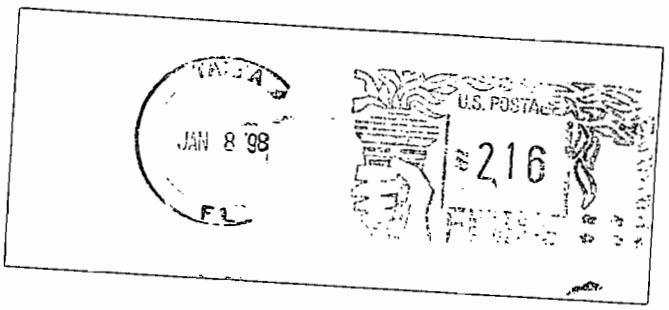
JUNE 1997

ADDENDUM
DECEMBER 1997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F.J. GANNON STATION

FUEL YARD MODIFICATION CONSTRUCTION PERMIT APPLICATION

TECO
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JUNE 1997

ADDENDUM
DECEMBER 1997

RESPONSES

FUEL YARD
CONSTRUCTION PERMIT APPLICATION

Tampa Electric Company (TEC) - F.J. Gannon Station
Fuel Yard Construction Permit Application
Responses to FDEP Comments of October 24, 1997

FDEP Comment No. 1

Your responses to date have not satisfactorily addressed the issue raised in the attached October 8, 1997 letter to Brian Beals. Please respond to that issue.

TEC Response No. 1

The issued raise in the October 8, 1997, letter to Brian Beals is the applicability of the U.S. Environmental Protection Agency (EPA) debottlenecking policy to the fuel yard project. The specific issue is whether an increase in permitted coal yard throughput represents a debottlenecking that requires a Prevention of Significant Deterioration (PSD) applicability determination and potential PSD permitting for an emissions increase from the boilers. In this situation, PSD is not applicable to the F.J. Gannon Station boilers for two independent reasons. These reasons are:

- *The use of Powder River Basin (PRB) and Indonesian coal for combustion is exempt from PSD applicability as a pollution control project.*
- *This increase in coal combustion is exempt from PSD applicability because the increase is not included within the Florida Department of Environmental Protection (FDEP) definition of modification.*

Each reason is discussed separately, below.

- *Pollution Control Project Exemption.*

  Chapter 62-212.400(2)(a)2., Florida Administrative Code (F.A.C.), exempts pollution control projects at existing steam generating units from the PSD permitting requirements of 62-212.400, F.A.C., if the project meets the requirements of 40 Code of Federal Regulation (CFR) 52.21(b)(2)(iii)(h). The use of PRB and Indonesian coals for combustion is a pollution control project because combustion of these coals reduces nitrogen oxides (NO_x) and sulfur dioxide (SO_2) emissions from existing steam generating units. This NO_x reduction occurs because the PRB and Indonesian coals have a higher moisture content than coals previously used at F.J. Gannon Station. The additional moisture inhibits NO_x formation during combustion, resulting in lower NO_x emissions. This SO_2 reduction is the result of the lower sulfur content in the PRB and Indonesion coals as compared to our traditional design coals. As such, this pollution control project meets the criteria of 40 CFR 52.21(b)(2)(iii) (h), and is therefore exempt from the PSD permitting requirements of 62-212.400, F.A.C., because this use does not render the steam generators less environmentally beneficial. Instead, this use is more environmentally

beneficial because NO_x and SO_2 emissions from the steam generators will be reduced and compliance with all other applicable emission requirements will continue to be maintained.

TEC notes that coal throughput will increase 0.92 million tons per year (tpy), from 2.85 million to 3.77 million tpy, as a result of this pollution prevention project. The calculations to support this coal throughput figure are provided in Table 1. The throughput increase was calculated in a three step procedure. First, actual coal usage and total heat content was determined for the baseline years. Because PRB coal deliveries began in 1996 and have continued to date, 1994 and 1995 were selected as the baseline years for determining the throughput increase. Next, total heat content was projected for the maximum allowed coal throughput of 2.85 million tpy. Finally, the equivalent amount of coal throughput was determined to be 3.77 million tpy, assuming that Steam Generators 1 through 4 are PRB coal-fired and that Steam Generators 5 and 6 are fired with a coal blend that includes 40 percent Indonesian coal.

TEC also notes that the requested annual coal throughput limit is based on a calendar year, in accordance with the existing throughput limit and consistent with the historical practice since the issuance of a coal throughput limit in Construction Permit AC29-61276 to serve F.J. Gannon Station Units 1-6. This approach is also consistent with EPA's and FDEP's ambient annual standards, which are calendar-year based.

- *Definition of Modification Exclusion*

Under 62-210.200(187)(a), F.A.C., a modification is any physical change in, change in the method of operation of, or addition to a facility which would result in an increase in actual emissions of any air pollutant subject to regulation. No physical change or addition to a facility will be made to accommodate the coal throughput increase. Under 62-210.200(187) (a)2., F.A.C., a physical change or change in the method of operation does not include an increase in the hours of operation or in the production rate, unless such change would be prohibited under any federally enforceable permit condition which was established after January 6, 1975. The existing fuel yard operating permit contains a coal throughput limit of 2.85 million tpy that is a federally enforceable permit condition established after January 6, 1975. Thus, any increase in throughput beyond the permit limit is a change in the method of operation, falls within the definition of modification, and makes the fuel yard subject to air permitting. As discussed above, however, the throughput limit increase beyond 2.85 million tpy is solely dependent on the pollution control project and the equilibration of heat content for the proposed compliance fuels which is exempt from PSD permitting requirements.

Consistent with the existing F.J. Gannon Station operating permits and draft Title V Air Operation Permit, the fuel yard throughput limit is applicable only to the fuel yard. This throughput limit is not a facility-wide applicable requirement nor an applicable requirement to the individual steam generators. Further, the steam generators' operating permits do not contain any other federally enforceable permit conditions which restrict hours of operation or production rate. Finally, the steam generators will continue to be in compliance with all

applicable requirements following the coal throughput increase. As a result, the coal throughput increase is not a physical change nor change in the method of operation of the steam generators, and so is not a modification. Because the change is not a modification, the PSD rules, including the debottlenecking guidelines, are not applicable to the steam generators.

FDEP Comment No. 2

Construction permit AC29-114676, issued May 19, 1987, authorized an increase in coal throughput at the coal yard from 2.4 million tons per year to 2.85 million tons per year. The current application leads to the raising of questions as to the basis for the request to increase the coal yard throughput at that time, particularly regarding any considerations at the boilers. Please provide further detail.

TEC Response No. 2

The historical files regarding TEC's fuel yard activities at Gannon Station from 1985 through 1987 provide significant information regarding FDEP's Comment No. 2. First, as stated in a TEC letter to DER on November 14, 1985:

> *"...Specific Condition No. 7 limits the volume of coal that may be transferred through the coal yard to 2.4 million tons per year. This condition represents a restriction on operation which is not based on an environmental restriction. We prefer that the operating permit not include conditions that would limit our production flexibility, but we recognize the Department's desire to ensure compliance with applicable rules and statutes. This number (2.4 millions tons per year) was used to determine whether the expected increase in emissions [from the coal yard] would be greater than the significance level of 25 tons/year, and thus trigger a LAER review. Based on evaluations using DER's equations, it was determined that the increase in emissions [from the coal yard] would be 3.95 tons/year over pre-modification levels, which is much lower than the significant increase level. Using the same technique for estimating the emissions as previously submitted, we have concluded that 2.9 million tons of coal can pass through the coal yard in a year without exceeding the applicable significance level..."*

Secondly, as stated in DER's Technical Evaluation and Preliminary Determination of the Gannon Station Coal Yard Modification dated April 8, 1987:

> *"The Gannon coal yard facility originally supplied coal to Gannon Units 5 and 6. In 1983, TECO received a construction permit (AC 29-61276) to allow modification of the Gannon coal yard to also supply Gannon Units 1, 2, 3, and 4 with an annual coal throughput to the coal yard of 2.4 million tons per year. The modification proposed now will increase the coal throughput to 2.85 millions tons per year. This modification will*

allow for maximum stockpiling and reclaiming of various sulfur content coals and will provide the flexibility necessary for blending the coals to achieve the required sulfur content and heating values. As proposed by TECO, this modification to increase coal throughput to the coal yard will result in an increase in fugitive dust emissions from the coal handling system and storage areas. The increase in particulate emissions from this modification and the earlier modification to the coal yard permitted in 1983, will result in an increase in particulate matter, which is less than the applicable significant emissions increase of 25 tons per year..."

As such, it is clear that:

- *The fuel yard throughput increase in 1987 as well as the currently requested throughput increase were both a means to provide operational flexibility to the plant by enabling the blending and use of various coals to achieve the desired reduction in emissions and maintenance of heat content;*

- *DER correctly did not consider the effect that increasing throughput in the fuel yard would have on emissions generated by the units burning the fuel, but did take into consideration the potential for a significant emissions increase from the fuel yard.*

Please note that F.J. Gannon Station is not changing from a cyclic to a baseload power generating station. F.J. Gannon Station is more load-following than Big Bend Station, but F.J. Gannon Station continues to carry a typical baseload of approximately 50-60% capacity. While the currently requested increase in the coal yard throughput is not dictated by extreme projections in load growth, the typically expected 3% annual load growth is accounted for along with the needed flexibility for blending/using compliance fuels.

FDEP Comment No. 3

Please address the issue discussed in the HEPC correspondence attached.

TEC Response No. 3

The cited correspondence is the memorandum from Rick Kirby to Jerry Kissel dated October 24, 1997. This memo raises two issues. Issue No. 2, which deals with the applicability of PSD to the steam generators, has been addressed in TEC Response No. 1 of this document. Issue No. 1, which deals with fuel yard emission factors, was addressed in TEC's Response to Agency Comments dated September 24, 1997. Specifically, coal moisture content and bulldozer operations emission factors were addressed in TEC Response No. 3 and in TEC Response No. 2, respectively, of that document. The Environmental Protection Commission of Hillsborough County (EPCHC) comment of October 24, 1997, repeats EPCHC's positions regarding coal moisture content and bulldozer operations emission factors without providing any technical support for those positions. In contrast, the TEC comments of September 24,

1997, provide ample technical support for TEC's selection of coal moisture content and bulldozer operations emission factors. The applicable portion of TEC's September 24, 1997, comments are repeated below for FDEP's convenience.

Coal Moisture Content

TEC believes that total material moisture content is the appropriate parameter to use for calculating particulate matter (PM) and respirable particulate matter (PM_{10}) emissions with AP-42 emission factors for the following reasons.

- *The AP-42 emission factors consistently reference "material moisture content" when discussing emission factor inputs. No reference exists to material surface moisture content.*

- *Appendix C.2 of AP-42 identifies the procedures for laboratory analysis of dust loading samples. In this appendix, the recommended procedure for determining material moisture content is American Society For Testing and Materials (ASTM) methods such as D-2216. Method D-2216 is the Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock. This method defines the water content of a material as "the ratio of the mass of water contained in the pore spaces of soil or rock material, to the solid mass of particles in that material, expressed as a percentage." By incorporating this ASTM method into AP-42, EPA clearly intended material moisture content to include all of the moisture contained in a material, not just surface moisture. Consistent with this approach, TEC has used the total minimum coal moisture content to estimate PM and PM_{10} emissions using AP-42 emission factors.*

- *TEC's approach to estimating PM and PM_{10} emissions from fuel yard sources is consistent with earlier analyses by TEC and other utility companies that received agency approval. TEC is not aware of any Florida construction permit application that included fugitive dust emission estimates based on surface moisture content.*

TEC would be pleased to review the input EPCHC received from EPA regarding this issue. Without this information, TEC cannot analyze the apparent inconsistency with EPA's AP-42. In addition, TEC does not understand the basis for EPCHC's suggestion to use a surface moisture content of 2 percent. As stated above, TEC believes total moisture is the appropriate parameter. However, even if surface moisture content was to be used in the AP-42 emission factors, TEC has no data indicating that 2 percent is an appropriate surface moisture content value for the fuels currently in use at F.J. Gannon Station.

Storage Pile Maintenance Emission Factor

Tractors operating to maintain the fuel storage piles cause PM and PM_{10} emissions. These emissions are included in the F.J. Gannon Station emissions inventory as source FH-044. The appropriate

emission calculation spreadsheets are included in Appendix B of the construction permit application. The emission factor used to estimate these emissions was obtained from Section 13.2.2, Unpaved Roads, of the Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources (AP-42). The Fifth Edition of AP-42, including Supplements A and B, was used. EPCHC noted that Section 11.9. of AP-42, Western Surface Coal Mining, includes an algorithm for coal bulldozing operations. EPCHC thought that using this algorithm might be more appropriate than using the unpaved road emission factor. Both emission factors have been reviewed. The unpaved road emission factor was selected because:

- *In Section 13.2.4, Aggregate Handling and Storage Piles, AP-42 specifically recommends using the unpaved roads emission factor from Section 13.2.2 to calculate emissions from equipment on coal storage piles.*

- *The unpaved roads emission factor has a higher emission factor quality rating than the western surface coal mining emission factor. The unpaved roads emission factor has an unadjusted A rating, which must be adjusted one step down to B because annual conditions are being evaluated. The western surface coal mining emission factor has an unadjusted B rating, which must be adjusted at least one step down to C because an eastern power plant fuel yard is being evaluated. AP-42 actually recommends a C rating if the western surface coal mining emission factor is applied to an eastern coal mine. AP-42 is silent on applying the factor to any other industrial operation, so the best possible rating for the western coal mining emission factor in this situation is C.*

- *FDEP and EPCHC have agreed with using the unpaved roads emission factor to estimate fuel storage pile emissions at other facilities, including the recently permitted Big Bend Station fuel yard transloading project.*

Given this background, TEC believes using the unpaved road emission factor is more appropriate for calculating PM and PM_{10} emissions caused by maintenance operations on the F.J. Gannon Station fuel yard.

TABLES

F.J. GANNON STATION
PROJECTED COAL USAGE BURNING PRB AND INDONESIAN COALS

Table 1. F.J. Gannon Station - Projected Coal Usage Burning PRB and Indonesian Coals

Unit	1994 Actual			1995 Actual			1994/1995 Average		
	Coal Usage (tons)	Coal Heat Content (Btu/lb)	Total Heat Input (Btu)	Coal Usage (tons)	Coal Heat Content (Btu/lb)	Total Heat Input (Btu)	Coal Usage (tons/yr)	Coal Heat Content (Btu/lb)	Total Heat Input (Btu/yr)
1	148,818	12,745	3.79E+12	186,212	12,745	4.75E+12	167,515	12,745	4.27E+12
2	168,304	12,745	4.29E+12	186,383	12,745	4.75E+12	177,344	12,745	4.52E+12
3	279,144	12,745	7.12E+12	274,919	12,745	7.01E+12	277,032	12,745	7.06E+12
4	280,595	12,745	7.15E+12	463,970	12,745	1.18E+13	372,283	12,745	9.49E+12
5	505,129	12,745	1.29E+13	519,780	12,745	1.32E+13	512,455	12,745	1.31E+13
6	845,724	12,745	2.16E+13	897,070	12,745	2.29E+13	871,397	12,745	2.22E+13
Total or Average	2,227,714	12,745	5.68E+13	2,528,334	12,745	6.44E+13	2,378,024	12,745	6.06E+13

Unit	Projected at Maximum Fuelyard Throughput			Pollution Prevention Coal Throughput		
	Coal Usage (tons)	Coal Heat Content (Btu/lb)	Total Heat Input (Btu)	Coal Usage (tons)	Coal Heat Content (Btu/lb)	Total Heat Input (Btu)
1	200,762	12,745	5.12E+12	312,038	8,200	5.12E+12
2	212,542	12,745	5.42E+12	330,347	8,200	5.42E+12
3	332,015	12,745	8.46E+12	516,040	8,200	8.46E+12
4	446,171	12,745	1.14E+13	693,469	8,200	1.14E+13
5	614,163	12,745	1.57E+13	710,300	11,020	1.57E+13
6	1,044,347	12,745	2.66E+13	1,207,822	11,020	2.66E+13
Total or Average	2,850,000	12,745	7.26E+13	3,770,018	10,023	7.26E+13

SIGNATURE PAGES

AUTHORIZATION AND P.E. CERTIFICATION

Owner/Authorized Representative or Responsible Official

1. Name and Title of Owner/Authorized Representative or Responsible Official :

Name : Patrick Ho
Title : Manager, Environmental Planning

2. Owner or Authorized Representative or Responsible Official Mailing Address :

Organization/Firm : Tampa Electric Company
Street Address : P.O. Box 111
City : Tampa
State : FL Zip Code : 33601-0111

3. Owner/Authorized Representative or Responsible Official Telephone Numbers :

Telephone : (813)641-5044 Fax : (813)641-5081

4. Owner/Authorized Representative or Responsible Official Statement :

I, the undersigned, am the owner or authorized representative of the non-Title V source addressed in this Application for Air Permit or the responsible official, as defined in Rule 62-210.200, F.A.C., of the Title V source addressed in this application, whichever is applicable. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof. I understand that a permit, if granted by the Department, cannot be transferred without authorization from the Department, and I will promptly notify the Department upon sale or legal transfer of any permitted emissions units.*

Patrick A. Ho
Signature

12/29/97
Date

* Attach letter of authorization if not currently on file.

Application Processing Fee

Check one :

[X] Attached - Amount : $250.00 [ ] Not Applicable.

Construction/Modification Information

1. Description of Proposed Project or Alterations :

   1. Increase fuel yard throughput from 2,850,000 tpy to 3,770,000 tpy.
   2. Standardize all barge and rail unloading belt speeds at 2,300 tph.
   3. Add equipment to handle alternate fuel at 362,025 tpy and 400 tph.
   4. Replace two existing crushers (Notification, only.)

2. Projected or Actual Date of Commencement of Construction : 01-Sep-1997

3. Projected Date of Completion of Construction : 31-Aug-1998

Professional Engineer Certification

1. Professional Engineer Name : Thomas W. Davis
   Registration Number : 36777

2. Professional Engineer Mailing Address :

   Organization/Firm : Env. Consulting & Technology, Inc.
   Street Address : 3701 NW 98th Street
   City : Gainesville State : FL Zip Code : 32606-____

3. Professional Engineer Telephone Numbers :
   Telephone : (352)332-0444 Fax : (352)332-6722

Application Contact

1. Name and Title of Application Contact :

Name : Theresa Watley
Title : **Consulting Engineer, Environmental Planning**

2. Application Contact Mailing Address :

Organization/Firm : Tampa Electric Company
Street Address : 6499 U.S. Highway 41 North
City : Apollo Beach
State : FL Zip Code : 33572-9200

3. Application Contact Telephone Numbers :

Telephone : (813)641-5034 Fax : (813)641-5081

Application Comment

4. Professional Engineer Statement :

I, the undersigned, hereby certified, except as particularly noted herein, that :*

(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollutant control equipment described in this Application for Air Permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and

(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.

If the purpose of this application is to obtain a Title V source air operation permit (check here [ ] if so), I further certify that each emissions unit described in this Application for Air Permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance schedule is submitted with this application.

If the purpose of this application is to obtain an air construction permit for one or more proposed new or modified emissions units (check here [X] if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.

If the purpose of this application is to obtain an initial air operation permit or operation permi revision for one or more newly constructed or modified emissions units (check here [ ] if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.

Thomas W. Davis

Signature

12/19/97

Date

* Attach any exception to certification statement.

REVISED APPLICATION PAGES

C. EMISSIONS UNIT DETAIL INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Information Section 1
Solid Fuel Bunkers (all solid fuel-fired units)

Emissions Unit Details

1. Initial Startup Date :		
2. Long-term Reserve Shutdown Date :		
3. Package Unit : Manufacturer :		Model Number :
4. Generator Nameplate Rating :	MW	
5. Incinerator Information : Dwell Temperature : Dwell Time : Incinerator Afterburner Temperature :		 Degrees Fahrenheit Seconds Degrees Fahrenheit

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate :	mmBtu/hr	
2. Maximum Incinerator Rate :	lb/hr	tons/day
3. Maximum Process or Throughput Rate :	4132025	tons per year
4. Maximum Production Rate :		
5. Operating Capacity Comment :		

Emissions Unit Operating Schedule

Requested Maximum Operating Schedule :	
24 hours/day	7 days/week
52 weeks/year	8,760 hours/year

F. SEGMENT (PROCESS/FUEL) INFORMATION

Emissions Unit Information Section 1

Solid Fuel Bunkers (all solid fuel-fired units)

Segment Description and Rate : Segment 1

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) : Fuel handling	
2. Source Classification Code (SCC) : 3-05-101-03	
3. SCC Units : Tons Transferred Or Handled	
4. Maximum Hourly Rate : 1,600.00	5. Maximum Annual Rate : 4,132,025.00
6. Estimated Annual Activity Factor :	
7. Maximum Percent Sulfur :	8. Maximum Percent Ash :
9. Million Btu per SCC Unit :	
10. Segment Comment : Maximum Hourly Rate (Field 4) is tons per hour per bunker. Bunkers are not filled simultaneously. Maximum Annual Rate (Field 5) is total for all bunkers.	

C. EMISSIONS UNIT DETAIL INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Information Section 2
Solid Fuel Handling and Storage (all sources)

Emissions Unit Details

1. Initial Startup Date :		
2. Long-term Reserve Shutdown Date :		
3. Package Unit : Manufacturer :		Model Number :
4. Generator Nameplate Rating :	MW	
5. Incinerator Information : Dwell Temperature : Dwell Time : Incinerator Afterburner Temperature :		 Degrees Fahrenheit Seconds Degrees Fahrenheit

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate :	mmBtu/hr	
2. Maximum Incinerator Rate :	lb/hr	tons/day
3. Maximum Process or Throughput Rate :	4132025	tons per year
4. Maximum Production Rate :		
5. Operating Capacity Comment : Solid fuel handling rate.		

Emissions Unit Operating Schedule

Requested Maximum Operating Schedule :	
24 hours/day	7 days/week
52 weeks/year	8,760 hours/year

F. SEGMENT (PROCESS/FUEL) INFORMATION

Emissions Unit Information Section 2

Solid Fuel Handling and Storage (all sources)

Segment Description and Rate : Segment 1

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) : Solid fuel handling and storage	
2. Source Classification Code (SCC) : 3-05-101-03	
3. SCC Units : Tons Transferred Or Handled	
4. Maximum Hourly Rate : 4,600.00	5. Maximum Annual Rate : 3,770,000.00
6. Estimated Annual Activity Factor :	
7. Maximum Percent Sulfur :	8. Maximum Percent Ash :
9. Million Btu per SCC Unit :	
10. Segment Comment : Maximum hourly rate may be different for some fuel handling equipment. The Maximum Hourly Rate (Field 4) of 4,600 tph is the highest for any one fuel handling operation (i.e., two parallel conveyor belts operating simultaneously). See DOC.II.E.6 for detailed maximum hourly rates for each belt conveyor.	