

F.J. GANNON STATION

FUEL YARD MODIFICATION

CONSTRUCTION PERMIT APPLICATION



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 (PM₁₀) 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 PM₁₀ 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 PM₁₀ 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 PM₁₀ 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 PM₁₀ 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 PM₁₀ emissions using AP-42 emission factors.
- TEC's approach to estimating PM and PM₁₀ 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	FH-036 -	Rotoclones	95	Rotoclones	75	D
Conveyors J1/J2 to Bunkers	FH-041					
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

¹Change 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.

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:

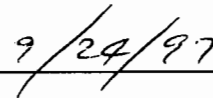
Telephone: (813) 641-5044 Fax: (813) 641-5081

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.*



Signature



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.

Thomas M. Owen

Signature

9/22/97

Date

(seal)

* Attach any exception to certification statement.

DOCUMENT II.E.6.2

**PM₁₀ EMISSION SUMMARY AND
DEMONSTRATION OF NO PREVENTION
OF SIGNIFICANT DETERIORATION
APPLICABILITY**

DOC.II.E.6.2 - SUMMARY OF PM10 EMISSION CHANGES				
Emission Point Description	Emission Point ID	PM10 Emission		
		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 PM₁₀ 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

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

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

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(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.

NOTES AND OBSERVATIONS

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

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

$$\text{Emission (lb/hr)} = 0.0011 \times \text{material transferred (ton/hr)} \times \left[\frac{\text{average wind speed (mph)}^1.3}{\text{moisture content (pct)}^1.4} \right] \times (100 - \text{control [pct]}/100)$$

$$\text{Emission (tpy)} = 0.0011 \times \text{material transferred (tpy)} \times \left[\frac{\text{average wind speed (mph)}^1.3}{\text{moisture content (pct)}^1.4} \right] \times (100 - \text{control [pct]}/100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(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 3-10, 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 tpy for a total unloading rate of 2,300 tpy.

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

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

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

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(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 3-10, 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

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

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

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(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

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

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

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(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 tpy for a total unloading rate of 2,300 tpy.

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

$$\text{Emission (lb/hr)} = 0.0011 \times \text{material transferred (ton/hr)} \times \left[\frac{\text{average wind speed (mph)}^5}{\text{moisture content (pct)}^2} \right]^{1.3} \times \frac{100 - \text{control (pct)}}{100}$$

$$\text{Emission (tpy)} = 0.0011 \times \text{material transferred (tpy)} \times \left[\frac{\text{average wind speed (mph)}^5}{\text{moisture content (pct)}^2} \right]^{1.3} \times \frac{100 - \text{control (pct)}}{100} \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(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 tpy for a total unloading rate of 2,300 tpy.

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

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

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

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(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 3-16, 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

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

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

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(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

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

$$\text{Emission (lb/hr)} = 0.0011 \times \text{material transferred (ton/hr)} \times \left[\frac{(\text{average wind speed (mph)/5})^{1.3}}{\text{moisture content (pct)/2}^{1.4}} \right] \times (100 - \text{control [pct]}/100)$$

$$\text{Emission (tpy)} = 0.0011 \times \text{material transferred (tpy)} \times \left[\frac{(\text{average wind speed (mph)/5})^{1.3}}{\text{moisture content (pct)/2}^{1.4}} \right] \times (100 - \text{control [pct]}/100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(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-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

$$\text{Emission (lb/hr)} = 0.0011 \times \text{material transferred (ton/hr)} \times \left[\frac{(\text{average wind speed (mph)/5})^{1.3}}{\text{moisture content (pct)/2}^{1.4}} \right] \times (100 - \text{control [pct]}/100)$$

$$\text{Emission (tpy)} = 0.0011 \times \text{material transferred (tpy)} \times \left[\frac{(\text{average wind speed (mph)/5})^{1.3}}{\text{moisture content (pct)/2}^{1.4}} \right] \times (100 - \text{control [pct]}/100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(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

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

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

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(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-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

$$\text{Emission (lb/hr)} = 0.0011 \times \text{material transferred (ton/hr)} \times \left[\frac{(\text{average wind speed (mph)/5})^{1.3}}{\text{moisture content (pct)/2}^{1.4}} \right] \times (100 - \text{control [pct]}/100)$$

$$\text{Emission (tpy)} = 0.0011 \times \text{material transferred (tpy)} \times \left[\frac{(\text{average wind speed (mph)/5})^{1.3}}{\text{moisture content (pct)/2}^{1.4}} \right] \times (100 - \text{control [pct]}/100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(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

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

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

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(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-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

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

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

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(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 tpy for a total rate of 4,600 tpy.

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

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

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

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(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 tpy for a total rate of 4,600 tpy.

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

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

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

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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 tpy for a total rate of 4,600 tpy.

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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 PM₁₀ 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 (m²): 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 PM₁₀ 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 (m²): 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	0.50	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	0.50	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 PM₁₀ 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 (m²): 18,856

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	2,839.6	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

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

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

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(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 reclaimers 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

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

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

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(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 reclaimers 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

$$\text{Emission (lb/hr)} = 0.0011 \times \text{material transferred (ton/hr)} \times \left[\frac{(\text{average wind speed (mph)})^{1.3}}{\text{moisture content (pct)}^2} \right]^{1.4} \times (100 - \text{control [pct]}/100)$$

$$\text{Emission (tpy)} = 0.0011 \times \text{material transferred (tpy)} \times \left[\frac{(\text{average wind speed (mph)})^{1.3}}{\text{moisture content (pct)}^2} \right]^{1.4} \times (100 - \text{control [pct]}/100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(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 reclaimers 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

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

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

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(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 reclaimers 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

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

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

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(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 reclaimers 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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(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 reclaimers 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

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

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

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(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 reclaimers 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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(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 emission rates assume 4 reclaimers 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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(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-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

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

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

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(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-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

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

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

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(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

$$\text{Emission (lb/hr)} = 0.0011 \times \text{material transferred (ton/hr)} \times \left[\frac{(\text{average wind speed (mph)} / 5)^{1.3}}{\text{moisture content (pct)} / 2} \right]^{1.4} \times (100 - \text{control [pct]} / 100)$$

$$\text{Emission (tpy)} = 0.0011 \times \text{material transferred (tpy)} \times \left[\frac{(\text{average wind speed (mph)} / 5)^{1.3}}{\text{moisture content (pct)} / 2} \right]^{1.4} \times (100 - \text{control [pct]} / 100) \times (1 / 2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(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 – 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

$$\text{Emission (lb/hr)} = \text{Flow Rate (scfm)} \times (\text{grain/scf}) \times (1 \text{ lb}/7,000 \text{ grain}) \times (60 \text{ min/hr})$$

$$\text{Emission (tpy)} = \text{Flow Rate (scfm)} \times (\text{grain/scf}) \times (1 \text{ lb}/7,000 \text{ grain}) \times (60 \text{ min/hr}) \times \text{Operating Hours (hrs/yr)} \times (1 \text{ ton}/2,000 \text{ lb})$$

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 (gt/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

$$\text{Emission (lb/hr)} = 0.0011 \times \text{material transferred (ton/hr)} \times \left[\frac{\text{average wind speed (mph)}^5}{\text{moisture content (pct)}^2} \right]^{1.3} \times (100 - \text{control [pct]}) / 100$$

$$\text{Emission (tpy)} = 0.0011 \times \text{material transferred (tpy)} \times \left[\frac{\text{average wind speed (mph)}^5}{\text{moisture content (pct)}^2} \right]^{1.3} \times (100 - \text{control [pct]}) / 100 \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(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

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

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

$$\text{Emission (lb/hr)} = 0.0011 \times \text{material transferred (ton/hr)} \times \left[\frac{(\text{average wind speed (mph)} / 5)^{1.3}}{\text{moisture content (pct)} / 2} \right]^{1.4} \times (100 - \text{control [pct]} / 100)$$

$$\text{Emission (tpy)} = 0.0011 \times \text{material transferred (tpy)} \times \left[\frac{(\text{average wind speed (mph)} / 5)^{1.3}}{\text{moisture content (pct)} / 2} \right]^{1.4} \times (100 - \text{control [pct]} / 100) \times (1 / 2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(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

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

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

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

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

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		Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
					(VMT/hr)	(VMT/yr)		(lb/hr)	(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

$$\text{Emission (lb/hr)} = 0.0011 \times \text{material transferred (ton/hr)} \times \left[\frac{\text{average wind speed (mph)}^1.3}{\text{moisture content (pct)}^2} \right]^1.4 \times (100 - \text{control [pct]}/100)$$

$$\text{Emission (tpy)} = 0.0011 \times \text{material transferred (tpy)} \times \left[\frac{\text{average wind speed (mph)}^1.3}{\text{moisture content (pct)}^2} \right]^1.4 \times (100 - \text{control [pct]}/100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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.

$$5,989 \text{ MMBtu/hr} \times 0.2 / 14,492 \text{ Btu/lb TDF} \times 8,760 \text{ hrs/yr} \times 1 \text{ ton}/2,000 \text{ lb} = 362,025 \text{ tpy}$$

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

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

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

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(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.

$$5,989 \text{ MMBtu/hr} \times 0.2 / 14,492 \text{ Btu/lb TDF} \times 8,760 \text{ hrs/yr} \times 1 \text{ ton}/2,000 \text{ lb} = 362,025 \text{ tpy}$$

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

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

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

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(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.

$$5,989 \text{ MMBtu/hr} \times 0.2 / 14,492 \text{ Btu/lb TDF} \times 8,760 \text{ hrs/yr} \times 1 \text{ ton}/2,000 \text{ lb} = 362,025 \text{ tpy}$$

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

$$\text{Emission (lb/hr)} = 0.0011 \times \text{material transferred (ton/hr)} \times \left[\frac{\text{average wind speed (mph)}^5}{5} / \text{moisture content (pct)}^2 \right]^{1.4} \times (100 - \text{control [pct]}) / 100$$

$$\text{Emission (tpy)} = 0.0011 \times \text{material transferred (tpy)} \times \left[\frac{\text{average wind speed (mph)}^5}{5} / \text{moisture content (pct)}^2 \right]^{1.4} \times (100 - \text{control [pct]}) / 100 \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(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.

$$5,989 \text{ MMBtu/hr} \times 0.2 / 14,492 \text{ Btu/lb TDF} \times 8,760 \text{ hrs/yr} \times 1 \text{ ton}/2,000 \text{ lb} = 362,025 \text{ tpy}$$

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

$$\text{Emission (lb/hr)} = 0.0011 \times \text{material transferred (ton/hr)} \times \left[\frac{(\text{average wind speed (mph)/5})^{1.3}}{(\text{moisture content (pct)/2})^{1.4}} \right] \times (100 - \text{control [pct]}/100)$$

$$\text{Emission (tpy)} = 0.0011 \times \text{material transferred (tpy)} \times \left[\frac{(\text{average wind speed (mph)/5})^{1.3}}{(\text{moisture content (pct)/2})^{1.4}} \right] \times (100 - \text{control [pct]}/100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(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.

$$5,989 \text{ MMBtu/hr} \times 0.2 / 14,492 \text{ Btu/lb TDF} \times 8,760 \text{ hrs/yr} \times 1 \text{ ton}/2,000 \text{ lb} = 362,025 \text{ tpy}$$

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 PM₁₀ 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

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

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

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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 PM₁₀ 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 tpy, 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

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

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

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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 PM₁₀ 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

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

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

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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 PM₁₀ 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

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

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

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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 PM₁₀ 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 2,787,753 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 tpy, 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

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

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

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(tpy)
8.6	1,150	882,681	6.5	85.0	0.07	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 85 pct to conservatively minimize actual emissions for PSD evaluation. Permitted control efficiency is 50 pct.

NOTES AND OBSERVATIONS

Actual PM₁₀ 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

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

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

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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 PM₁₀ 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

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

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

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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 PM₁₀ 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

$$\text{Emission (lb/hr)} = 0.0011 \times \text{material transferred (ton/hr)} \times \left[\frac{\text{average wind speed (mph)}^5}{\text{moisture content (pct)}^2} \right]^{1.3} \times (100 - \text{control [pct]}/100)$$

$$\text{Emission (tpy)} = 0.0011 \times \text{material transferred (tpy)} \times \left[\frac{\text{average wind speed (mph)}^5}{\text{moisture content (pct)}^2} \right]^{1.3} \times (100 - \text{control [pct]}/100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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 Modelling for Fugitive Particulate Sources, UARG, September 1981.

NOTES AND OBSERVATIONS

Actual PM₁₀ 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

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

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

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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 PM₁₀ 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

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

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

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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 PM₁₀ 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

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

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

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(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 PM₁₀ 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

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

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

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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 PM₁₀ 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

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

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

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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 PM₁₀ 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

$$\text{Emission (lb/hr)} = 0.0011 \times \text{material transferred (ton/hr)} \times \left[\frac{\text{average wind speed (mph)}^5}{\text{moisture content (pct)}^2} \right]^{1.3} \times (100 - \text{control [pct]}/100)$$

$$\text{Emission (tpy)} = 0.0011 \times \text{material transferred (tpy)} \times \left[\frac{\text{average wind speed (mph)}^5}{\text{moisture content (pct)}^2} \right]^{1.3} \times (100 - \text{control [pct]}/100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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 PM₁₀ 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

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

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

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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 PM₁₀ 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

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

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

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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 PM₁₀ 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

$$\text{Emission (lb/hr)} = 0.0011 \times \text{material transferred (ton/hr)} \times \left[\frac{(\text{average wind speed (mph)} / 5)^{1.3}}{\text{moisture content (pct)} / 2} \right]^{1.4} \times (100 - \text{control [pct]} / 100)$$

$$\text{Emission (tpy)} = 0.0011 \times \text{material transferred (tpy)} \times \left[\frac{(\text{average wind speed (mph)} / 5)^{1.3}}{\text{moisture content (pct)} / 2} \right]^{1.4} \times (100 - \text{control [pct]} / 100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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 PM₁₀ 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 PM₁₀ 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/yr)	(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 PM₁₀ 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: 91		Pile Height (m): 21		Surface Area (m ²): 16,754	
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 PM₁₀ 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 (m²): 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

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

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

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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 PM₁₀ 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

$$\text{Emission (lb/hr)} = 0.0011 \times \text{material transferred (ton/hr)} \times \left[\frac{(\text{average wind speed (mph)/5})^{1.3}}{\text{moisture content (pct)/2}^{1.4}} \right] \times (100 - \text{control [pct]}/100)$$

$$\text{Emission (tpy)} = 0.0011 \times \text{material transferred (tpy)} \times \left[\frac{(\text{average wind speed (mph)/5})^{1.3}}{\text{moisture content (pct)/2}^{1.4}} \right] \times (100 - \text{control [pct]}/100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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 PM₁₀ 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 tpy, 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

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

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

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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 PM₁₀ 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

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

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

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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 PM₁₀ 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 tpy, 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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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 PM₁₀ 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 tpy, 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

$$\text{Emission (lb/hr)} = 0.0011 \times \text{material transferred (ton/hr)} \times \left[\frac{(\text{average wind speed (mph)/5})^{1.3}}{\text{moisture content (pct)/2}^{1.4}} \right] \times (100 - \text{control [pct]/100})$$

$$\text{Emission (tpy)} = 0.0011 \times \text{material transferred (tpy)} \times \left[\frac{(\text{average wind speed (mph)/5})^{1.3}}{\text{moisture content (pct)/2}^{1.4}} \right] \times (100 - \text{control [pct]/100}) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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 PM₁₀ 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 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 tpy, 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

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

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

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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 PM₁₀ 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

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

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

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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 PM₁₀ 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

$$\text{Emission (lb/hr)} = 0.0011 \times \text{material transferred (ton/hr)} \times \left[\frac{\text{average wind speed (mph)}^{1.3}}{2} / \text{moisture content (pct)}^{1.4} \right] \times (100 - \text{control [pct]}/100)$$

$$\text{Emission (tpy)} = 0.0011 \times \text{material transferred (tpy)} \times \left[\frac{\text{average wind speed (mph)}^{1.3}}{2} / \text{moisture content (pct)}^{1.4} \right] \times (100 - \text{control [pct]}/100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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 PM₁₀ 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

$$\text{Emission (lb/hr)} = 0.0011 \times \text{material transferred (ton/hr)} \times \left[\frac{(\text{average wind speed (mph)} / 5)^{1.3}}{\text{moisture content (pct)} / 2} \right]^{1.4} \times (100 - \text{control [pct]} / 100)$$

$$\text{Emission (tpy)} = 0.0011 \times \text{material transferred (tpy)} \times \left[\frac{(\text{average wind speed (mph)} / 5)^{1.3}}{\text{moisture content (pct)} / 2} \right]^{1.4} \times (100 - \text{control [pct]} / 100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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 PM₁₀ 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

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

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

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		Control Efficiency (pct)	Actual PM ₁₀ Emission Rates	
					(VMT/hr)	(VMT/yr)		(lb/hr)	(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

$Emission (lb/hr) = 0.0032 \times material\ transferred\ (ton/hr) \times [(average\ wind\ speed\ (mph)/5]^{1.3} / moisture\ content\ (pct)/2]^{1.4} \times (100 - control[pct]/100)$

$Emission\ (tpy) = 0.0032 \times material\ transferred\ (tpy) \times [(average\ wind\ speed\ (mph)/5]^{1.3} / moisture\ content\ (pct)/2]^{1.4} \times (100 - control[pct]/100) \times (1/2,000)$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(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

$$\text{Emission (lb/hr)} = 0.0032 \times \text{material transferred (ton/hr)} \times \left[\frac{(\text{average wind speed (mph)/5})^{1.3}}{\text{moisture content (pct)/2}^{1.4}} \right] \times (100 - \text{control [pct]}/100)$$

$$\text{Emission (tpy)} = 0.0032 \times \text{material transferred (tpy)} \times \left[\frac{(\text{average wind speed (mph)/5})^{1.3}}{\text{moisture content (pct)/2}^{1.4}} \right] \times (100 - \text{control [pct]}/100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(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.
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

$Emission (lb/hr) = 0.0032 \times material\ transferred\ (ton/hr) \times [(average\ wind\ speed\ (mph)/5]^{1.3} / moisture\ content\ (pct)/2]^{1.4} \times (100 - control[pct]/100)$

$Emission\ (tpy) = 0.0032 \times material\ transferred\ (tpy) \times [(average\ wind\ speed\ (mph)/5]^{1.3} / moisture\ content\ (pct)/2]^{1.4} \times (100 - control[pct]/100) \times (1/2,000)$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(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.
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

$$\text{Emission (lb/hr)} = 0.0032 \times \text{material transferred (ton/hr)} \times [(\text{average wind speed (mph)}/5)^{1.3} / \text{moisture content (pct)}/2]^{1.4} \times (100 - \text{control(pct)}/100)$$

$$\text{Emission (tpy)} = 0.0032 \times \text{material transferred (tpy)} \times [(\text{average wind speed (mph)}/5)^{1.3} / \text{moisture content (pct)}/2]^{1.4} \times (100 - \text{control(pct)}/100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(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.
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

$Emission (lb/hr) = 0.0032 \times material\ transferred\ (ton/hr) \times [(average\ wind\ speed\ (mph)/5]^{1.3} / moisture\ content\ (pct)/2]^{1.4} \times (100 - control\ [pct]/100)$

$Emission\ (tpy) = 0.0032 \times material\ transferred\ (tpy) \times [(average\ wind\ speed\ (mph)/5]^{1.3} / moisture\ content\ (pct)/2]^{1.4} \times (100 - control\ [pct]/100) \times (1/2,000)$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(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.
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

$$\text{Emission (lb/hr)} = 0.0032 \times \text{material transferred (ton/hr)} \times \left[\frac{\text{average wind speed (mph)}^5}{2} \right]^{1.3} / \left[\frac{\text{moisture content (pct)}^2}{2} \right]^{1.4} \times (100 - \text{control [pct]}/100)$$

$$\text{Emission (tpy)} = 0.0032 \times \text{material transferred (tpy)} \times \left[\frac{\text{average wind speed (mph)}^5}{2} \right]^{1.3} / \left[\frac{\text{moisture content (pct)}^2}{2} \right]^{1.4} \times (100 - \text{control [pct]}/100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(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.
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

$$\text{Emission (lb/hr)} = 0.0032 \times \text{material transferred (ton/hr)} \times \left[\frac{(\text{average wind speed (mph)} / 5)^{1.3}}{\text{moisture content (pct)} / 2} \right]^{1.4} \times (100 - \text{control (pct)} / 100)$$

$$\text{Emission (tpy)} = 0.0032 \times \text{material transferred (tpy)} \times \left[\frac{(\text{average wind speed (mph)} / 5)^{1.3}}{\text{moisture content (pct)} / 2} \right]^{1.4} \times (100 - \text{control (pct)} / 100) \times (1 / 2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(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 3-16, 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

$$\text{Emission (lb/hr)} = 0.0032 \times \text{material transferred (ton/hr)} \times \left[\frac{(\text{average wind speed (mph)} / 5)^{1.3}}{\text{moisture content (pct)} / 2} \right]^{1.4} \times (100 - \text{control [pct]} / 100)$$

$$\text{Emission (tpy)} = 0.0032 \times \text{material transferred (tpy)} \times \left[\frac{(\text{average wind speed (mph)} / 5)^{1.3}}{\text{moisture content (pct)} / 2} \right]^{1.4} \times (100 - \text{control [pct]} / 100) \times (1 / 2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(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

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

$$\text{Emission (lb/hr)} = 0.0032 \times \text{material transferred (ton/hr)} \times [(\text{average wind speed (mph)}/5)^{1.3} / \text{moisture content (pct)}/2]^{1.4} \times (100 - \text{control (pct)}/100)$$

$$\text{Emission (tpy)} = 0.0032 \times \text{material transferred (tpy)} \times [(\text{average wind speed (mph)}/5)^{1.3} / \text{moisture content (pct)}/2]^{1.4} \times (100 - \text{control (pct)}/100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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

$Emission (lb/hr) = 0.0032 \times material\ transferred\ (ton/hr) \times [(average\ wind\ speed\ (mph)/5]^{1.3} / moisture\ content\ (pct)/2]^{1.4} \times (100 - control\ (pct)/100)$

$Emission\ (tpy) = 0.0032 \times material\ transferred\ (tpy) \times [(average\ wind\ speed\ (mph)/5]^{1.3} / moisture\ content\ (pct)/2]^{1.4} \times (100 - control\ (pct)/100) \times (1/2,000)$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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

$$\text{Emission (lb/hr)} = 0.0032 \times \text{material transferred (ton/hr)} \times \left[\frac{(\text{average wind speed (mph)/5})^{1.3}}{\text{moisture content (pct)/2}^{1.4}} \right] \times (100 - \text{control [pct]}/100)$$

$$\text{Emission (tpy)} = 0.0032 \times \text{material transferred (tpy)} \times \left[\frac{(\text{average wind speed (mph)/5})^{1.3}}{\text{moisture content (pct)/2}^{1.4}} \right] \times (100 - \text{control [pct]}/100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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

$$\text{Emission (lb/hr)} = 0.0032 \times \text{material transferred (ton/hr)} \times [(\text{average wind speed (mph)}/5)^{1.3} / \text{moisture content (pct)}/2]^{1.4} \times (100 - \text{control [pct]}/100)$$

$$\text{Emission (tpy)} = 0.0032 \times \text{material transferred (tpy)} \times [(\text{average wind speed (mph)}/5)^{1.3} / \text{moisture content (pct)}/2]^{1.4} \times (100 - \text{control [pct]}/100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(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 tpy for a total rate of 4,600 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

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

$$\text{Emission (lb/hr)} = 0.0032 \times \text{material transferred (ton/hr)} \times [(\text{average wind speed (mph)}/5)^{1.3} / \text{moisture content (pct)}/2]^{1.4} \times (100 - \text{control [pct]}/100)$$

$$\text{Emission (tpy)} = 0.0032 \times \text{material transferred (tpy)} \times [(\text{average wind speed (mph)}/5)^{1.3} / \text{moisture content (pct)}/2]^{1.4} \times (100 - \text{control [pct]}/100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(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 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

$$\text{Emission (lb/hr)} = 0.0032 \times \text{material transferred (ton/hr)} \times [(\text{average wind speed (mph)/5})^{1.3} / \text{moisture content (pct)/2}]^{1.4} \times (100 - \text{control [pct]}/100)$$

$$\text{Emission (tpy)} = 0.0032 \times \text{material transferred (tpy)} \times [(\text{average wind speed (mph)/5})^{1.3} / \text{moisture content (pct)/2}]^{1.4} \times (100 - \text{control [pct]}/100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(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 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

$$\text{Emission (lb/hr)} = 0.0032 \times \text{material transferred (ton/hr)} \times \left[\frac{\text{average wind speed (mph)}^5}{2} \right]^{1.3} / \text{moisture content (pct)}^2 \times (100 - \text{control [pct]}) / 100$$

$$\text{Emission (tpy)} = 0.0032 \times \text{material transferred (tpy)} \times \left[\frac{\text{average wind speed (mph)}^5}{2} \right]^{1.3} / \text{moisture content (pct)}^2 \times (100 - \text{control [pct]}) / 100 \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(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 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

$$\text{Emission (lb/hr)} = 0.0032 \times \text{material transferred (ton/hr)} \times [(\text{average wind speed (mph)}/5)^{1.3} / \text{moisture content (pct)}/2]^{1.4} \times (100 - \text{control [pct]}/100)$$

$$\text{Emission (tpy)} = 0.0032 \times \text{material transferred (tpy)} \times [(\text{average wind speed (mph)}/5)^{1.3} / \text{moisture content (pct)}/2]^{1.4} \times (100 - \text{control [pct]}/100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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

$$\text{Emission (lb/hr)} = 0.0032 \times \text{material transferred (ton/hr)} \times \left[\frac{\text{average wind speed (mph)}^5}{\text{moisture content (pct)}^2} \right]^{1.3} \times \left[\frac{100 - \text{control (pct)}}{100} \right]$$

$$\text{Emission (tpy)} = 0.0032 \times \text{material transferred (tpy)} \times \left[\frac{\text{average wind speed (mph)}^5}{\text{moisture content (pct)}^2} \right]^{1.3} \times \left[\frac{100 - \text{control (pct)}}{100} \right] \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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/yr)	(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	1988 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 (m²): **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)	(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	1996 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 (m²): 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)	(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	18.52	14	2,639.6	12.01	0.0240	
65	1.80	43.62	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

$$\text{Emission (lb/hr)} = 0.0032 \times \text{material transferred (ton/hr)} \times [(\text{average wind speed (mph)}/5)^{1.3} / \text{moisture content (pct)}/2]^{1.4} \times (100 - \text{control [pct]}/100)$$

$$\text{Emission (tpy)} = 0.0032 \times \text{material transferred (tpy)} \times [(\text{average wind speed (mph)}/5)^{1.3} / \text{moisture content (pct)}/2]^{1.4} \times (100 - \text{control [pct]}/100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(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

$$\text{Emission (lb/hr)} = 0.0032 \times \text{material transferred (ton/hr)} \times [(\text{average wind speed (mph)}/5)^{1.3} / \text{moisture content (pct)}/2]^{1.4} \times (100 - \text{control (pct)}/100)$$

$$\text{Emission (tpy)} = 0.0032 \times \text{material transferred (tpy)} \times [(\text{average wind speed (mph)}/5)^{1.3} / \text{moisture content (pct)}/2]^{1.4} \times (100 - \text{control (pct)}/100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(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-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

$$\text{Emission (lb/hr)} = 0.0032 \times \text{material transferred (ton/hr)} \times [(\text{average wind speed (mph)} / 5)^{1.3} / \text{moisture content (pct)} / 2]^{1.4} \times (100 - \text{control (pct)}) / 100$$

$$\text{Emission (tpy)} = 0.0032 \times \text{material transferred (tpy)} \times [(\text{average wind speed (mph)} / 5)^{1.3} / \text{moisture content (pct)} / 2]^{1.4} \times (100 - \text{control (pct)}) / 100 \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(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-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

$$\text{Emission (lb/hr)} = 0.0032 \times \text{material transferred (ton/hr)} \times \left[\frac{(\text{average wind speed (mph)} / 5)^{1.3}}{\text{moisture content (pct)} / 2} \right]^{1.4} \times (100 - \text{control (pct)} / 100)$$

$$\text{Emission (tpy)} = 0.0032 \times \text{material transferred (tpy)} \times \left[\frac{(\text{average wind speed (mph)} / 5)^{1.3}}{\text{moisture content (pct)} / 2} \right]^{1.4} \times (100 - \text{control (pct)} / 100) \times (1 / 2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(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-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

$Emission (lb/hr) = 0.0032 \times material\ transferred\ (ton/hr) \times [(average\ wind\ speed\ (mph)/5)^{1.3} / moisture\ content\ (pct)/2]^{1.4} \times (100 - control[pct])/100$

$Emission\ (tpy) = 0.0032 \times material\ transferred\ (tpy) \times [(average\ wind\ speed\ (mph)/5)^{1.3} / moisture\ content\ (pct)/2]^{1.4} \times (100 - control[pct])/100 \times (1/2,000)$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(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

$$\text{Emission (lb/hr)} = 0.0032 \times \text{material transferred (ton/hr)} \times [(\text{average wind speed (mph)/5})^{1.3} / \text{moisture content (pct)/2}]^{1.4} \times (100 - \text{control [pct]}/100)$$

$$\text{Emission (tpy)} = 0.0032 \times \text{material transferred (tpy)} \times [(\text{average wind speed (mph)/5})^{1.3} / \text{moisture content (pct)/2}]^{1.4} \times (100 - \text{control [pct]}/100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(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-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

$Emission (lb/hr) = 0.0032 \times material\ transferred\ (ton/hr) \times [(average\ wind\ speed\ (mph)/5)^{1.3} / moisture\ content\ (pct)/2]^{1.4} \times (100 - control[pct]/100)$

$Emission\ (tpy) = 0.0032 \times material\ transferred\ (tpy) \times [(average\ wind\ speed\ (mph)/5)^{1.3} / moisture\ content\ (pct)/2]^{1.4} \times (100 - control[pct]/100) \times (1/2,000)$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(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

$$\text{Emission (lb/hr)} = 0.0032 \times \text{material transferred (ton/hr)} \times [(\text{average wind speed (mph)}/5)^{1.3} / \text{moisture content (pct)}/2]^{1.4} \times (100 - \text{control [pct]}/100)$$

$$\text{Emission (tpy)} = 0.0032 \times \text{material transferred (tpy)} \times [(\text{average wind speed (mph)}/5)^{1.3} / \text{moisture content (pct)}/2]^{1.4} \times (100 - \text{control [pct]}/100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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

$Emission (lb/hr) = 0.0032 \times material\ transferred\ (ton/hr) \times [(average\ wind\ speed\ (mph)/5]^{1.3} / moisture\ content\ (pct)/2]^{1.4} \times (100 - control\ [pct]/100)$

$Emission\ (tpy) = 0.0032 \times material\ transferred\ (tpy) \times [(average\ wind\ speed\ (mph)/5]^{1.3} / moisture\ content\ (pct)/2]^{1.4} \times (100 - control\ [pct]/100) \times (1/2,000)$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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

$$\text{Emission (lb/hr)} = 0.0032 \times \text{material transferred (ton/hr)} \times [(\text{average wind speed (mph)/5})^{1.3} / \text{moisture content (pct)/2}]^{1.4} \times (100 - \text{control (pct)}/100)$$

$$\text{Emission (tpy)} = 0.0032 \times \text{material transferred (tpy)} \times [(\text{average wind speed (mph)/5})^{1.3} / \text{moisture content (pct)/2}]^{1.4} \times (100 - \text{control (pct)}/100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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

$Emission (lb/hr) = 0.0032 \times material\ transferred\ (ton/hr) \times [(average\ wind\ speed\ (mph)/5]^{1.3} / moisture\ content\ (pct)/2]^{1.4} \times (100 - control\ (pct)/100)$

$Emission\ (tpy) = 0.0032 \times material\ transferred\ (tpy) \times [(average\ wind\ speed\ (mph)/5]^{1.3} / moisture\ content\ (pct)/2]^{1.4} \times (100 - control\ (pct)/100) \times (1/2,000)$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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

$$\text{Emission (lb/hr)} = 0.0032 \times \text{material transferred (ton/hr)} \times [(\text{average wind speed (mph)}/5)^{1.3} / \text{moisture content (pct)}/2]^{1.4} \times (100 - \text{control [pct]}/100)$$

$$\text{Emission (tpy)} = 0.0032 \times \text{material transferred (tpy)} \times [(\text{average wind speed (mph)}/5)^{1.3} / \text{moisture content (pct)}/2]^{1.4} \times (100 - \text{control [pct]}/100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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

$$\text{Emission (lb/hr)} = 0.0032 \times \text{material transferred (ton/hr)} \times [(\text{average wind speed (mph)}/5)^{1.3} / \text{moisture content (pct)}/2]^{1.4} \times (100 - \text{control(pct)}/100)$$

$$\text{Emission (tpy)} = 0.0032 \times \text{material transferred (tpy)} \times [(\text{average wind speed (mph)}/5)^{1.3} / \text{moisture content (pct)}/2]^{1.4} \times (100 - \text{control(pct)}/100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(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 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 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

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

$$\text{Emission (lb/hr)} = 0.0032 \times \text{material transferred (ton/hr)} \times [(\text{average wind speed (mph)/5})^{1.3} / \text{moisture content (pct)/2}]^{1.4} \times (100 - \text{control [pct]}/100)$$

$$\text{Emission (tpy)} = 0.0032 \times \text{material transferred (tpy)} \times [(\text{average wind speed (mph)/5})^{1.3} / \text{moisture content (pct)/2}]^{1.4} \times (100 - \text{control [pct]}/100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(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 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 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

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

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

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

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		Control Efficiency (pct)	Actual PM Emission Rates	
					(VMT/hr)	(VMT/yr)		(lb/hr)	(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 Suppressant

Emission Point ID: AH-001

Transfer Point ID(s):

EMISSION ESTIMATION EQUATIONS

$Emission (lb/hr) = 0.0032 \times material\ transferred\ (ton/hr) \times [(average\ wind\ speed\ (mph)/5]^{1.3} / moisture\ content\ (pct)/2]^{1.4} \times (100 - control\ (pct)/100)$

$Emission\ (tpy) = 0.0032 \times material\ transferred\ (tpy) \times [(average\ wind\ speed\ (mph)/5]^{1.3} / moisture\ content\ (pct)/2]^{1.4} \times (100 - control\ (pct)/100) \times (1/2,000)$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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 Data 1 through 4 firing an 80/20 coal/TDF blend at maximum capacity for 8,760 hrs/yr.

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

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

$$\text{Emission (lb/hr)} = 0.0032 \times \text{material transferred (ton/hr)} \times [(\text{average wind speed (mph)}/5)^{1.3} / \text{moisture content (pct)}/2]^{1.4} \times (100 - \text{control [pct]}/100)$$

$$\text{Emission (tpy)} = 0.0032 \times \text{material transferred (tpy)} \times [(\text{average wind speed (mph)}/5)^{1.3} / \text{moisture content (pct)}/2]^{1.4} \times (100 - \text{control [pct]}/100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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.

$$5,989 \text{ MMBtu/hr} \times 0.2 / 14,492 \text{ Btu/lb TDF} \times 8,760 \text{ hrs/yr} \times 1 \text{ ton}/2,000 \text{ lb} = 362,025 \text{ tpy}$$

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

$$\text{Emission (lb/hr)} = 0.0032 \times \text{material transferred (ton/hr)} \times \left[\frac{(\text{average wind speed (mph)/5})^{1.3}}{\text{moisture content (pct)/2}^{1.4}} \right] \times \frac{(100 - \text{control [pct]})}{100}$$

$$\text{Emission (tpy)} = 0.0032 \times \text{material transferred (tpy)} \times \left[\frac{(\text{average wind speed (mph)/5})^{1.3}}{\text{moisture content (pct)/2}^{1.4}} \right] \times \frac{(100 - \text{control [pct]})}{100} \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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.

$$5,989 \text{ MMBtu/hr} \times 0.2 / 14,492 \text{ Btu/lb TDF} \times 8,760 \text{ hrs/yr} \times 1 \text{ ton}/2,000 \text{ lb} = 362,025 \text{ tpy}$$

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

$$\text{Emission (lb/hr)} = 0.0032 \times \text{material transferred (ton/hr)} \times [(\text{average wind speed (mph)}/5)^{1.3} / \text{moisture content (pct)}/2]^{1.4} \times (100 - \text{control [pct]}/100)$$

$$\text{Emission (tpy)} = 0.0032 \times \text{material transferred (tpy)} \times [(\text{average wind speed (mph)}/5)^{1.3} / \text{moisture content (pct)}/2]^{1.4} \times (100 - \text{control [pct]}/100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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.

$$5,989 \text{ MMBtu/hr} \times 0.2 / 14,492 \text{ Btu/lb TDF} \times 8,760 \text{ hrs/yr} \times 1 \text{ ton}/2,000 \text{ lb} = 362,025 \text{ tpy}$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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

$Emission (lb/hr) = 0.0032 \times material\ transferred\ (ton/hr) \times [(average\ wind\ speed\ (mph)/5]^{1.3} / moisture\ content\ (pct)/2]^{1.4} \times (100 - control\ (pct)/100)$

$Emission\ (tpy) = 0.0032 \times material\ transferred\ (tpy) \times [(average\ wind\ speed\ (mph)/5]^{1.3} / moisture\ content\ (pct)/2]^{1.4} \times (100 - control\ (pct)/100) \times (1/2,000)$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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

$$\text{Emission (lb/hr)} = 0.0032 \times \text{material transferred (ton/hr)} \times \left[\frac{\text{average wind speed (mph)}^1}{5} \right]^{1.3} / \left[\frac{\text{moisture content (pct)}^2}{2} \right]^{1.4} \times (100 - \text{control [pct]}/100)$$

$$\text{Emission (tpy)} = 0.0032 \times \text{material transferred (tpy)} \times \left[\frac{\text{average wind speed (mph)}^1}{5} \right]^{1.3} / \left[\frac{\text{moisture content (pct)}^2}{2} \right]^{1.4} \times (100 - \text{control [pct]}/100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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 (mph)	Actual Quantity Transferred		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(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

$Emission (lb/hr) = 0.0032 \times material\ transferred\ (ton/hr) \times [(average\ wind\ speed\ (mph)/5]^{1.3} / moisture\ content\ (pct)/2]^{1.4} \times (100 - control\ [pct]/100)$

$Emission\ (tpy) = 0.0032 \times material\ transferred\ (tpy) \times [(average\ wind\ speed\ (mph)/5]^{1.3} / moisture\ content\ (pct)/2]^{1.4} \times (100 - control\ [pct]/100) \times (1/2,000)$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(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-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

$$\text{Emission (lb/hr)} = 0.0032 \times \text{material transferred (ton/hr)} \times [(\text{average wind speed (mph)/5})^{1.3} / \text{moisture content (pct)/2}^{1.4}] \times (100 - \text{control [pct]}/100)$$

$$\text{Emission (tpy)} = 0.0032 \times \text{material transferred (tpy)} \times [(\text{average wind speed (mph)/5})^{1.3} / \text{moisture content (pct)/2}^{1.4}] \times (100 - \text{control [pct]}/100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(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 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

$$\text{Emission (lb/hr)} = 0.0032 \times \text{material transferred (ton/hr)} \times [(\text{average wind speed (mph)}/5)^{1.3} / \text{moisture content (pct)}/2]^{1.4} \times (100 - \text{control [pct]}/100)$$

$$\text{Emission (tpy)} = 0.0032 \times \text{material transferred (tpy)} \times [(\text{average wind speed (mph)}/5)^{1.3} / \text{moisture content (pct)}/2]^{1.4} \times (100 - \text{control [pct]}/100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(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 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

$$\text{Emission (lb/hr)} = 0.0032 \times \text{material transferred (ton/hr)} \times [(\text{average wind speed (mph)/5})^{1.3} / \text{moisture content (pct)/2}^{1.4}] \times (100 - \text{control [pct]}/100)$$

$$\text{Emission (tpy)} = 0.0032 \times \text{material transferred (tpy)} \times [(\text{average wind speed (mph)/5})^{1.3} / \text{moisture content (pct)/2}^{1.4}] \times (100 - \text{control [pct]}/100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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

$Emission (lb/hr) = 0.0032 \times material\ transferred\ (ton/hr) \times [(average\ wind\ speed\ (mph)/5]^{1.3} / moisture\ content\ (pct)/2]^{1.4} \times (100 - control\ [pct]/100)$

$Emission\ (tpy) = 0.0032 \times material\ transferred\ (tpy) \times [(average\ wind\ speed\ (mph)/5]^{1.3} / moisture\ content\ (pct)/2]^{1.4} \times (100 - control\ [pct]/100) \times (1/2,000)$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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

$Emission (lb/hr) = 0.0032 \times material\ transferred\ (ton/hr) \times [(average\ wind\ speed\ (mph)/5]^{1.3} / moisture\ content\ (pct)/2]^{1.4} \times (100 - control\ [pct]/100)$

$Emission\ (tpy) = 0.0032 \times material\ transferred\ (tpy) \times [(average\ wind\ speed\ (mph)/5]^{1.3} / moisture\ content\ (pct)/2]^{1.4} \times (100 - control\ [pct]/100) \times (1/2,000)$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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

$$\text{Emission (lb/hr)} = 0.0032 \times \text{material transferred (ton/hr)} \times \left[\frac{(\text{average wind speed (mph)/5})^{1.3}}{\text{moisture content (pct)/2}^{1.4}} \right] \times (100 - \text{control [pct]}/100)$$

$$\text{Emission (tpy)} = 0.0032 \times \text{material transferred (tpy)} \times \left[\frac{(\text{average wind speed (mph)/5})^{1.3}}{\text{moisture content (pct)/2}^{1.4}} \right] \times (100 - \text{control [pct]}/100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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

$Emission (lb/hr) = 0.0032 \times material\ transferred\ (ton/hr) \times [(average\ wind\ speed\ (mph)/5]^{1.3} / moisture\ content\ (pct)/2]^{1.4} \times (100 - control\ [pct]/100)$

$Emission\ (tpy) = 0.0032 \times material\ transferred\ (tpy) \times [(average\ wind\ speed\ (mph)/5]^{1.3} / moisture\ content\ (pct)/2]^{1.4} \times (100 - control\ [pct]/100) \times (1/2,000)$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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

$Emission (lb/hr) = 0.0032 \times material\ transferred\ (ton/hr) \times [(average\ wind\ speed\ (mph)/5]^{1.3} / moisture\ content\ (pct)/2]^{1.4} \times (100 - control\ [pct]/100)$

$Emission\ (tpy) = 0.0032 \times material\ transferred\ (tpy) \times [(average\ wind\ speed\ (mph)/5]^{1.3} / moisture\ content\ (pct)/2]^{1.4} \times (100 - control\ [pct]/100) \times (1/2,000)$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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

$Emission (lb/hr) = 0.0032 \times material\ transferred\ (ton/hr) \times [(average\ wind\ speed\ (mph)/5]^{1.3} / moisture\ content\ (pct)/2]^{1.4} \times (100 - control\ (pct)/100)$

$Emission\ (tpy) = 0.0032 \times material\ transferred\ (tpy) \times [(average\ wind\ speed\ (mph)/5]^{1.3} / moisture\ content\ (pct)/2]^{1.4} \times (100 - control\ (pct)/100) \times (1/2,000)$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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

$$\text{Emission (lb/hr)} = 0.0032 \times \text{material transferred (ton/hr)} \times [(\text{average wind speed (mph)/5})^{1.3} / \text{moisture content (pct)/2}]^{1.4} \times (100 - \text{control(pct)}/100)$$

$$\text{Emission (tpy)} = 0.0032 \times \text{material transferred (tpy)} \times [(\text{average wind speed (mph)/5})^{1.3} / \text{moisture content (pct)/2}]^{1.4} \times (100 - \text{control(pct)}/100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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

$$\text{Emission (lb/hr)} = 0.0032 \times \text{material transferred (ton/hr)} \times \left[\frac{\text{average wind speed (mph)}^5}{\text{moisture content (pct)}^2} \right]^{1.3} \times \frac{100 - \text{control (pct)}}{100}$$

$$\text{Emission (tpy)} = 0.0032 \times \text{material transferred (tpy)} \times \left[\frac{\text{average wind speed (mph)}^5}{\text{moisture content (pct)}^2} \right]^{1.3} \times \frac{100 - \text{control (pct)}}{100} \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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

$$\text{Emission (lb/hr)} = 0.0032 \times \text{material transferred (ton/hr)} \times \left[\frac{\text{average wind speed (mph)}^5}{\text{moisture content (pct)}^2} \right]^{1.4} \times (100 - \text{control [pct]}/100)$$

$$\text{Emission (tpy)} = 0.0032 \times \text{material transferred (tpy)} \times \left[\frac{\text{average wind speed (mph)}^5}{\text{moisture content (pct)}^2} \right]^{1.4} \times (100 - \text{control [pct]}/100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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

$$\text{Emission (lb/hr)} = 0.0032 \times \text{material transferred (ton/hr)} \times \left[\frac{(\text{average wind speed (mph)/5})^{1.3}}{\text{moisture content (pct)/2}^{1.4}} \right] \times (100 - \text{control [pct]}/100)$$

$$\text{Emission (tpy)} = 0.0032 \times \text{material transferred (tpy)} \times \left[\frac{(\text{average wind speed (mph)/5})^{1.3}}{\text{moisture content (pct)/2}^{1.4}} \right] \times (100 - \text{control [pct]}/100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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 (m²): 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)	(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 (m²): 18,754

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)	(tpy)	
14	1.30	8.38	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	18.52	14	2,345.5	10.98	0.0214	
65	1.80	43.82	4	670.2	8.09	0.0162	
77	1.30	8.38	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	1996 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 (m²): 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)	(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

$$\text{Emission (lb/hr)} = 0.0032 \times \text{material transferred (ton/hr)} \times \left[\frac{\text{average wind speed (mph)}^1}{5} \right]^{1.3} / \left[\frac{\text{moisture content (pct)}^2}{2} \right]^{1.4} \times (100 - \text{control (pct)} / 100)$$

$$\text{Emission (tpy)} = 0.0032 \times \text{material transferred (tpy)} \times \left[\frac{\text{average wind speed (mph)}^1}{5} \right]^{1.3} / \left[\frac{\text{moisture content (pct)}^2}{2} \right]^{1.4} \times (100 - \text{control (pct)} / 100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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 tpy, 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

$$\text{Emission (lb/hr)} = 0.0032 \times \text{material transferred (ton/hr)} \times \left[\frac{(\text{average wind speed (mph)/5})^{1.3}}{\text{moisture content (pct)/2}^{1.4}} \right] \times (100 - \text{control [pct]}/100)$$

$$\text{Emission (tpy)} = 0.0032 \times \text{material transferred (tpy)} \times \left[\frac{(\text{average wind speed (mph)/5})^{1.3}}{\text{moisture content (pct)/2}^{1.4}} \right] \times (100 - \text{control [pct]}/100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(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-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

$Emission (lb/hr) = 0.0032 \times material\ transferred\ (ton/hr) \times [(average\ wind\ speed\ (mph)/5]^{1.3} / moisture\ content\ (pct)/2]^{1.4} \times (100 - control\ [pct]/100)$

$Emission\ (tpy) = 0.0032 \times material\ transferred\ (tpy) \times [(average\ wind\ speed\ (mph)/5]^{1.3} / moisture\ content\ (pct)/2]^{1.4} \times (100 - control\ [pct]/100) \times (1/2,000)$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(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 tpy, 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

$$\text{Emission (lb/hr)} = 0.0032 \times \text{material transferred (ton/hr)} \times \left[\frac{\text{average wind speed (mph)}^1}{5} \right]^{1.3} / \left[\frac{\text{moisture content (pct)}^2}{2} \right]^{1.4} \times (100 - \text{control [pct]}/100)$$

$$\text{Emission (tpy)} = 0.0032 \times \text{material transferred (tpy)} \times \left[\frac{\text{average wind speed (mph)}^1}{5} \right]^{1.3} / \left[\frac{\text{moisture content (pct)}^2}{2} \right]^{1.4} \times (100 - \text{control [pct]}/100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(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 tpy, 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 (mph)	Actual Quantity Transferred		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(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 tpy, 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

$$\text{Emission (lb/hr)} = 0.0032 \times \text{material transferred (ton/hr)} \times [(\text{average wind speed (mph)}/5)^{1.3} / \text{moisture content (pct)}/2]^{1.4} \times (100 - \text{control [pct]}/100)$$

$$\text{Emission (tpy)} = 0.0032 \times \text{material transferred (tpy)} \times [(\text{average wind speed (mph)}/5)^{1.3} / \text{moisture content (pct)}/2]^{1.4} \times (100 - \text{control [pct]}/100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(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 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 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 tpy, 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

6

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

$$\text{Emission (lb/hr)} = 0.0032 \times \text{material transferred (ton/hr)} \times [(\text{average wind speed (mph)/5})^{1.3} / \text{moisture content (pct)/2}]^{1.4} \times (100 - \text{control [pct]}/100)$$

$$\text{Emission (tpy)} = 0.0032 \times \text{material transferred (tpy)} \times [(\text{average wind speed (mph)/5})^{1.3} / \text{moisture content (pct)/2}]^{1.4} \times (100 - \text{control [pct]}/100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(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-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

$Emission (lb/hr) = 0.0032 \times material\ transferred\ (ton/hr) \times [(average\ wind\ speed\ (mph)/5]^{1.3} / moisture\ content\ (pct)/2]^{1.4} \times (100 - control\ [pct]/100)$

$Emission\ (tpy) = 0.0032 \times material\ transferred\ (tpy) \times [(average\ wind\ speed\ (mph)/5]^{1.3} / moisture\ content\ (pct)/2]^{1.4} \times (100 - control\ [pct]/100) \times (1/2,000)$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(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

$$\text{Emission (lb/hr)} = 0.0032 \times \text{material transferred (ton/hr)} \times [(\text{average wind speed (mph)}/5)^{1.3} / \text{moisture content (pct)}/2]^{1.4} \times (100 - \text{control [pct]}/100)$$

$$\text{Emission (tpy)} = 0.0032 \times \text{material transferred (tpy)} \times [(\text{average wind speed (mph)}/5)^{1.3} / \text{moisture content (pct)}/2]^{1.4} \times (100 - \text{control [pct]}/100) \times (1/2,000)$$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(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 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

$Emission (lb/hr) = 0.0032 \times material\ transferred\ (ton/hr) \times [(average\ wind\ speed\ (mph)/5]^{1.3} / moisture\ content\ (pct)/2]^{1.4} \times (100 - control[pct])/100$

$Emission\ (tpy) = 0.0032 \times material\ transferred\ (tpy) \times [(average\ wind\ speed\ (mph)/5]^{1.3} / moisture\ content\ (pct)/2]^{1.4} \times (100 - control[pct])/100 \times (1/2,000)$

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		Material Moisture Content (pct)	Control Efficiency (pct)	Actual PM Emission Rates	
	(ton/hr)	(ton/yr)			(lb/hr)	(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

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

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

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		Control Efficiency (pct)	Actual PM Emission Rates	
					(VMT/hr)	(VMT/yr)		(lb/hr)	(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:	