## Phillips, Cindy

**From:** Phillips, Cindy
**Sent:** Friday, April 09, 2004 12:13 PM
**To:** 'lrcrouch@tecoenergy.com'; 'sscastro@tecoenergy.com'; 'tdavis@ectinc.com'; 'harman@epchc.org'; Waters, Jason
**Cc:** Linero, Alvaro; 'dennisr@epchc.org'
**Subject:** Transloading of Coal and Petcoke at Big Bend Station
**Attachments:** BigBendApril9RFI.doc

A paper version of the attached electronic document is being mailed to you today. If you have any questions, please let me know.

Cindy L. Phillips, PE
Bureau of Air Regulation
850-921-9534

April 9, 2004

CERTIFIED MAIL- RETURN RECEIPT REQUESTED

Ms. Laura R. Crouch
Manager – Air Programs
Environmental, Health & Safety
Tampa Electric Company
PO Box 111
Tampa, FL 33601-0111

Re: Big Bend Station - Title V Permit: 0570039-013-AV
Request for Generic Emissions Unit Exemption for Coal or Petcoke Transloading

Dear Ms. Crouch:

The Department received your request for a generic emissions unit exemption for coal or petcoke transloading at Big Bend Station. Though you provided calculations to show that the total potential emissions of petcoke from the two new emission points (front-end loader transfer from pile to trucks, and truck travel on Big Bend Station paved roads) were below the 5.0 tons per year threshold criteria for particulate matter, you did not provide calculations to show what amount of particulate matter emissions from the transloaded solid fuel would be emitted as it is transferred along any utilized existing solid fuels handling equipment. Please provide the calculation of these emissions which reflect a change in the method of operation of the existing equipment.

In addition, as no calculations for the emissions from coal handling were provided, only petcoke handling, please provide a statement of explanation. For instance, it may be that the petcoke has a lower moisture content than the coal, and the handling of petcoke will always be the worst case scenario.

If you have any questions regarding this request for additional information, please contact me at Cindy.Phillips@dep.state.fl.us or 850/921-9534.

Sincerely,

Cindy L. Phillips, P.E.
Bureau of Air Regulation

c: Shelly Castro, TEC
Thomas Davis, P.E., ECT
Alice Harman, EPCHC
Jason Waters, FDEP-SWD

# Attachment A

**Tampa Electric Company - Big Bend Station**
**Petroleum Coke/Slag Transloading $PM/PM_{10}$ Emission Estimates**

| Emission Point Description | Emission Point ID | Potential Emission Rates PM (lb/hr) | PM (tpy) | $PM_{10}$ (lb/hr) | $PM_{10}$ (tpy) |
|---|---|---|---|---|---|
| **A. Petroleum Coke** | | | | | |
| Petcoke Handling - Existing Equipment | FH-001 thru FH-008b | 0.359 | 0.187 | 0.170 | 0.088 |
| Petcoke Truck Loading at Storage Pile | PET-01 | 0.012 | 0.006 | 0.006 | 0.003 |
| Petcoke Trucks (Empty) | PET-02a | 1.446 | 0.752 | 0.281 | 0.146 |
| Petcoke Trucks (Full) | PET-02b | 4.092 | 2.128 | 0.797 | 0.415 |
| **Totals** | | **5.909** | **3.073** | **1.254** | **0.652** |
| **B. Slag** | | | | | |
| Slag Handling - Existing Equipment | FH-001 thru FH-008b | 0.755 | 0.393 | 0.357 | 0.186 |
| Slag Truck Loading at Storage Pile | SLAG-01 | 0.014 | 0.007 | 0.007 | 0.003 |
| Slag Trucks (Empty) | SLAG-02a | 1.446 | 0.752 | 0.281 | 0.146 |
| Slag Trucks (Full) | SLAG-02b | 4.092 | 2.128 | 0.797 | 0.415 |
| **Totals** | | **6.307** | **3.280** | **1.442** | **0.750** |
| **C. Coal** | | | | | |
| Coal Handling - Existing Equipment | FH-001 thru FH-008b | 0.398 | 0.207 | 0.188 | 0.098 |
| Coal Truck Loading at Storage Pile | COAL-01 | 0.013 | 0.007 | 0.006 | 0.003 |
| Coal Trucks (Empty) | COAL-02a | 1.446 | 0.752 | 0.281 | 0.146 |
| Coal Trucks (Full) | COAL-02b | 4.092 | 2.128 | 0.797 | 0.415 |
| **Totals** | | **5.950** | **3.094** | **1.273** | **0.662** |

Source: ECT, 2004.

# EMISSION INVENTORY WORKSHEET

Coal Transloading

**Tampa Electric Company - Big Bend Station**

## EMISSION SOURCE TYPE

**FUGITIVE PM - MATERIAL TRANSFER (DROPS)** — Figure:

## FACILITY AND SOURCE DESCRIPTION

| | |
|---|---|
| Emission Source Description: | Fugitive PM - Transloading of Coal |
| Emission Control Method(s)/ID No.(s): | Moist material, application of chemical surfactant |
| Emission Point ID: | FH-001 thru FH-008b, COAL-01 |

## EMISSION ESTIMATION EQUATIONS

PM Emission (lb/hr) = 0.74 x 0.0032 x [(Wind Speed/5)$^{1.3}$ / (Material Moisture Content/2)$^{1.4}$] x Material Handled (ton/hr)

PM Emission (ton/yr) = 0.74 x 0.0032 x [(Wind Speed/5)$^{1.3}$ / (Material Moisture Content/2)$^{1.4}$] x Material Handled (ton/yr) x (1 ton/2,000 lb)

Source: Section 13.2.4, AP-42, January 1995.

## INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed: 8.6 mph — Material Moisture Content: 6.5 weight %

| Material Transfer Point | Source ID | Material Transfer Rates (ton/hr) | Material Transfer Rates (ton/yr) | Uncontrolled Emission Factor (lb PM/ton) | Control Efficiency (%) | Controlled Emission Factor (lb PM/ton) | Potential PM Emission Rates (lb/hr) | Potential PM Emission Rates (ton/yr) |
|---|---|---|---|---|---|---|---|---|
| **Existing Equipment** | | | | | | | | |
| Barge Clamshell to Conveyor D1 | FH-001 | 144.2 | 150,000 | 0.000920 | 25.0 | 0.000690 | 0.0996 | 0.0518 |
| Barge Bucket Elevator to Conveyor A1 | FH-002 | 144.2 | 150,000 | 0.000920 | 25.0 | 0.000690 | 0.0996 | 0.0518 |
| Conveyor A1 to Conveyor B1 | FH-003 | 144.2 | 150,000 | 0.000920 | 85.0 | 0.000138 | 0.0199 | 0.0104 |
| Conveyor B1 to Conveyor D1 | FH-004 | 144.2 | 150,000 | 0.000920 | 85.0 | 0.000138 | 0.0199 | 0.0104 |
| Self-Unloading Barge to Conveyor D1 | FH-005 | 144.2 | 150,000 | 0.000920 | 25.0 | 0.000690 | 0.0996 | 0.0518 |
| Conveyor D1 to Conveyor E1 | FH-006 | 144.2 | 150,000 | 0.000920 | 85.0 | 0.000138 | 0.0199 | 0.0104 |
| Conveyor E1 to Conveyor Y | FH-007 | 144.2 | 150,000 | 0.000920 | 90.0 | 0.000092 | 0.0133 | 0.0069 |
| Conveyor Y to Conveyor Z | FH-008a | 144.2 | 150,000 | 0.000920 | 90.0 | 0.000092 | 0.0133 | 0.0069 |
| Conveyor Z to Coal Storage Pile | FH-008b | 144.2 | 150,000 | 0.000920 | 90.0 | 0.000092 | 0.0133 | 0.0069 |
| ***New Equipment*** | | | | | | | | |
| Front-End Loader Reclaim from Coal Storage Pile to CoalTrucks | COAL-1 | 144.2 | 150,000 | 0.000920 | 90.0 | 0.000092 | 0.0133 | 0.0069 |
| | | | | | | **Totals** | **0.4115** | **0.2140** |

## SOURCES OF INPUT DATA

| Parameter | Data Source |
|---|---|
| Mean Wind Speed, mph | Climate of the States (Tampa, FL), Third Edition, 1985. |
| Material Moisture Content | TEC, 2003. |
| Material Transfer Point Identification | TEC, 2003. |
| Material Transfer Rates | TEC, 2003. |
| Control Efficiency | Table 3.2.17-2, Workbook on Estimation and Dispersion Modeling for Fugitive Particulate Sources, UARG, September 1981. |

## NOTES AND OBSERVATIONS

1. Material transfer rates based on 8 hrs/dy, 5 dys/wk, and 26 wks/yr operation.
2. Control Efficiencies: Side Enclosure (25%), Enclosure (85%), Treated With Dust Suppressant (90%).

## DATA CONTROL

| | | | |
|---|---|---|---|
| Data Collected by: | L. Crouch | Date: | 12/03 |
| Evaluated by: | T. Davis | Date: | 5/04 |
| Data Entered by: | T. Davis | Date: | 5/04 |

# EMISSION INVENTORY WORKSHEET

**Tampa Electric Company - Big Bend Station**

**Coal Transloading**

## EMISSION SOURCE TYPE

**FUGITIVE $PM_{10}$ - MATERIAL TRANSFER (DROPS)** — **Figure:**

## FACILITY AND SOURCE DESCRIPTION

| | |
|---|---|
| Emission Source Description: | Fugitive $PM_{10}$ - Transloading of Coal |
| Emission Control Method(s)/ID No.(s): | Moist material, application of chemical surfactant |
| Emission Point ID: | FH-001 thru FH-008b, COAL-01 |

## EMISSION ESTIMATION EQUATIONS

$PM_{10}$ Emission (lb/hr) = 0.35 x 0.0032 x [(Wind Speed/5)$^{1.3}$ / (Material Moisture Content/2)$^{1.4}$] x Material Handled (ton/hr)

$PM_{10}$ Emission (ton/yr) = 0.35 x 0.0032 x [(Wind Speed/5)$^{1.3}$ / (Material Moisture Content/2)$^{1.4}$] x Material Handled (ton/yr) x (1 ton/2,000 lb)

Source: Section 13.2.4, AP-42, January 1995.

## INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed: 8.6 mph

Material Moisture Content: 6.5 weight %

| Material Transfer Point | Source ID | Material Transfer Rates (ton/hr) | Material Transfer Rates (ton/yr) | Uncontrolled Emission Factor (lb PM/ton) | Control Efficiency (%) | Controlled Emission Factor (lb PM/ton) | Potential $PM_{10}$ Emission Rates (lb/hr) | Potential $PM_{10}$ Emission Rates (ton/yr) |
|---|---|---|---|---|---|---|---|---|
| **Existing Equipment** | | | | | | | | |
| Barge Clamshell to Conveyor D1 | FH-001 | 144.2 | 150,000 | 0.000435 | 25.0 | 0.000326 | 0.0471 | 0.0245 |
| Barge Bucket Elevator to Conveyor A1 | FH-002 | 144.2 | 150,000 | 0.000435 | 25.0 | 0.000326 | 0.0471 | 0.0245 |
| Conveyor A1 to Conveyor B1 | FH-003 | 144.2 | 150,000 | 0.000435 | 85.0 | 0.000065 | 0.0094 | 0.0049 |
| Conveyor B1 to Conveyor D1 | FH-004 | 144.2 | 150,000 | 0.000435 | 85.0 | 0.000065 | 0.0094 | 0.0049 |
| Self-Unloading Barge to Conveyor D1 | FH-005 | 144.2 | 150,000 | 0.000435 | 25.0 | 0.000326 | 0.0471 | 0.0245 |
| Conveyor D1 to Conveyor E1 | FH-006 | 144.2 | 150,000 | 0.000435 | 85.0 | 0.000065 | 0.0094 | 0.0049 |
| Conveyor E1 to Conveyor Y | FH-007 | 144.2 | 150,000 | 0.000435 | 90.0 | 0.000044 | 0.0063 | 0.0033 |
| Conveyor Y to Conveyor Z | FH-008a | 144.2 | 150,000 | 0.000435 | 90.0 | 0.000044 | 0.0063 | 0.0033 |
| Conveyor Z to Coal Storage Pile | FH-008b | 144.2 | 150,000 | 0.000435 | 90.0 | 0.000044 | 0.0063 | 0.0033 |
| **New Equipment** | | | | | | | | |
| Front-End Loader Reclaim from Coal Storage Pile to CoalTrucks | PET-1 | 144.2 | 150,000 | 0.000435 | 90.0 | 0.000044 | 0.0063 | 0.0033 |
| | | | | | | **Totals** | **0.1946** | **0.1012** |

## SOURCES OF INPUT DATA

| Parameter | Data Source |
|---|---|
| Mean Wind Speed, mph | Climate of the States (Tampa, FL), Third Edition, 1985. |
| Material Moisture Content | TEC, 2003. |
| Material Transfer Point Identification | TEC, 2003. |
| Material Transfer Rates | TEC, 2003. |
| Control Efficiency | Table 3.2.17-2, Workbook on Estimation and Dispersion Modeling for Fugitive Particulate Sources, UARG, September 1981. |

## NOTES AND OBSERVATIONS

1. Material transfer rates based on 8 hrs/dy, 5 dys/wk, and 26 wks/yr operation.
2. Control Efficiencies: Side Enclosure (25%), Enclosure (85%), Treated With Dust Suppressant (90%).

## DATA CONTROL

| | | | |
|---|---|---|---|
| Data Collected by: | L. Crouch | Date: | 12/03 |
| Evaluated by: | T. Davis | Date: | 5/04 |
| Data Entered by: | T. Davis | Date: | 5/04 |

# EMISSION INVENTORY WORKSHEET

**Tampa Electric Company - Big Bend Station**

**COAL-02**

**Coal Trucks**

## EMISSION SOURCE TYPE

**FUGITIVE PM - TRUCK TRAFFIC ON PAVED ROADS**

## FACILITY AND SOURCE DESCRIPTION

| | |
|---|---|
| Emission Source Description: | Fugitive PM - Transloading of Coal; Truck Traffic on Paved Roads |
| Emission Control Method(s)/ID No.(s): | Watering, As Necessary |
| Emission Point ID: | COAL-02 |

## EMISSION ESTIMATION EQUATIONS

PM Emission (lb/hr) = ((0.082 x [(Silt Loading Factor/2)$^{0.65}$] x [(Truck Weight/3)$^{1.5)}$ - 0.00047) x (1 - ("Wet" Days/1,460)) x Vehicle Miles Traveled (VMT)/hr

PM Emission (ton/yr) = ((0.082 x [(Silt Loading Factor/2)$^{0.65}$] x [(Truck Weight/3)$^{1.5)}$ - 0.00047) x (1-("Wet" Days/1,460)) x Vehicle Miles Traveled (VMT)/yr x (1 ton/2,000 lb)

Source: Section 13.2.1, AP-42, November 2003.

## INPUT DATA AND EMISSIONS CALCULATIONS

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Controlled Silt Loading Factor: | 0.97 | g/m$^2$ | Mean Annual Number of "Wet" Days: | 100 | | | |
| Operating Hours: | 8 | hr/dy | 5 | dy/wk | 26 | wk/yr | |
| Coal Shipped by Truck: | 150,000 | ton/yr | Truck Travel Distance (one way): | 1,600 | ft | | |
| Hourly Truck Count: | 11 | trucks/hr | Annual Truck Count: | 11,538 | trucks/yr | | |

| Truck Traffic Type | Source ID | Vehicle Miles Traveled (VMT/hr) | Vehicle Miles Traveled (VMT/yr) | Vehicle Weight (ton) | Control Efficiency (%) | Potential PM Emission Rates (lb/hr) | Potential PM Emission Rates (ton/yr) |
|---|---|---|---|---|---|---|---|
| Coal Trucks (Empty) | COAL-02a | 3.362 | 3,497 | 13.0 | 90.0 | 1.446 | 0.752 |
| Coal Trucks (Full) | COAL-02b | 3.362 | 3,497 | 26.0 | 90.0 | 4.092 | 2.128 |
| | | | | | **Totals** | **5.54** | **2.880** |

## SOURCES OF INPUT DATA

| Parameter | Data Source |
|---|---|
| Controlled Silt Loading Factor | Based on factor for iron and steel production and overall 90% control efficiency, ECT, 2003. |
| Mean Annual Number of "Wet" Days | Figure 13.2.1-2, Section 13.2.1, AP-42, November 2003. |
| Vehicle Miles Traveled, VMT | TEC, 2003. |
| Truck Weights, ton | TEC, 2003. |
| Control Efficiency | Estimated, ECT 2003. |

## NOTES AND OBSERVATIONS

## DATA CONTROL

| | | | |
|---|---|---|---|
| **Data Collected by:** | S. Castro | **Date:** | 5/04 |
| **Evaluated by:** | T. Davis | **Date:** | 5/04 |
| **Data Entered by:** | T. Davis | **Date:** | 5/04 |

# EMISSION INVENTORY WORKSHEET

**Tampa Electric Company - Big Bend Station**

**COAL-02**

**Coal Trucks**

## EMISSION SOURCE TYPE

**FUGITIVE $PM_{10}$ - TRUCK TRAFFIC ON PAVED ROADS**

## FACILITY AND SOURCE DESCRIPTION

| | |
|---|---|
| Emission Source Description: | Fugitive $PM_{10}$ - Transloading of Coal; Truck Traffic on Paved Roads |
| Emission Control Method(s)/ID No.(s): | Watering, As Necessary |
| Emission Point ID: | COAL-02 |

## EMISSION ESTIMATION EQUATIONS

$PM_{10}$ Emission (lb/hr) = ((0.016 x [(Silt Loading Factor/2)$^{0.65}$] x [(Truck Weight/3)$^{1.5)}$ - 0.00047) x (1 - ("Wet" Days/1,460)) x Vehicle Miles Traveled (VMT)/hr

$PM_{10}$ Emission (ton/yr) = ((0.016 x [(Silt Loading Factor/2)$^{0.65}$] x [(Truck Weight/3)$^{1.5)}$ - 0.00047) x (1-("Wet" Days/1,460)) x Vehicle Miles Traveled (VMT)/yr x (1 ton/2,000 lb)

Source: Section 13.2.1, AP-42, November 2003.

## INPUT DATA AND EMISSIONS CALCULATIONS

| | | | | | |
|---|---|---|---|---|---|
| Controlled Silt Loading Factor: | 0.97 | $g/m^2$ | Mean Annual Number of "Wet" Days: | 100 | |
| Operating Hours: | 8 | hr/dy | 5 dy/wk | 26 | wk/yr |
| Coal Shipped by Truck: | 150,000 | ton/yr | Truck Travel Distance (one way): | 1,600 | ft |
| Hourly Truck Count: | 11 | trucks/hr | Annual Truck Count: | 11,538 | trucks/yr |

| Truck Traffic Type | Source ID | Vehicle Miles Traveled (VMT/hr) | Vehicle Miles Traveled (VMT/yr) | Vehicle Weight (ton) | Control Efficiency (%) | Potential $PM_{10}$ Emission Rates (lb/hr) | Potential $PM_{10}$ Emission Rates (ton/yr) |
|---|---|---|---|---|---|---|---|
| Coal Trucks (Empty) | COAL-02a | 3.362 | 3,497 | 13.0 | 90.0 | 0.281 | 0.146 |
| Coal Trucks (Full) | COAL-02b | 3.362 | 3,497 | 26.0 | 90.0 | 0.797 | 0.415 |
| | | | | | | | |
| | | | | | **Totals** | **1.08** | **0.561** |

## SOURCES OF INPUT DATA

| Parameter | Data Source |
|---|---|
| Controlled Silt Loading Factor | Based on factor for iron and steel production and overall 90% control efficiency, ECT, 2003. |
| Mean Annual Number of "Wet" Days | Figure 13.2.1-2, Section 13.2.1, AP-42, November 2003. |
| Vehicle Miles Traveled, VMT | TEC, 2003. |
| Truck Weights, ton | TEC, 2003. |
| Control Efficiency | Estimated, ECT 2003. |

## NOTES AND OBSERVATIONS

## DATA CONTROL

| | | | |
|---|---|---|---|
| **Data Collected by:** | S. Castro | **Date:** | 5/04 |
| **Evaluated by:** | T. Davis | **Date:** | 5/04 |
| **Data Entered by:** | T. Davis | **Date:** | 5/04 |

# EMISSION INVENTORY WORKSHEET

**Tampa Electric Company - Big Bend Station**

**Petcoke Transloading**

## EMISSION SOURCE TYPE

**FUGITIVE PM - MATERIAL TRANSFER (DROPS)**

**Figure:**

## FACILITY AND SOURCE DESCRIPTION

| | |
|---|---|
| Emission Source Description: | Fugitive PM - Transloading of Petroleum Coke |
| Emission Control Method(s)/ID No.(s): | Moist material, application of chemical surfactant |
| Emission Point ID: | FH-001 thru FH-008b, PET-01 |

## EMISSION ESTIMATION EQUATIONS

PM Emission (lb/hr) = 0.74 x 0.0032 x [(Wind Speed/5)$^{1.3}$ / (Material Moisture Content/2)$^{1.4}$] x Material Handled (ton/hr)

PM Emission (ton/yr) = 0.74 x 0.0032 x [(Wind Speed/5)$^{1.3}$ / (Material Moisture Content/2)$^{1.4}$] x Material Handled (ton/yr) x (1 ton/2,000 lb)

Source: Section 13.2.4, AP-42, January 1995.

## INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed: 8.6 mph

Material Moisture Content: 7.0 weight %

| Material Transfer Point | Source ID | Material Transfer Rates (ton/hr) | Material Transfer Rates (ton/yr) | Uncontrolled Emission Factor (lb PM/ton) | Control Efficiency (%) | Controlled Emission Factor (lb PM/ton) | Potential PM Emission Rates (lb/hr) | Potential PM Emission Rates (ton/yr) |
|---|---|---|---|---|---|---|---|---|
| **Existing Equipment** | | | | | | | | |
| Barge Clamshell to Conveyor D1 | FH-001 | 144.2 | 150,000 | 0.000830 | 25.0 | 0.000622 | 0.0897 | 0.0467 |
| Barge Bucket Elevator to Conveyor A1 | FH-002 | 144.2 | 150,000 | 0.000830 | 25.0 | 0.000622 | 0.0897 | 0.0467 |
| Conveyor A1 to Conveyor B1 | FH-003 | 144.2 | 150,000 | 0.000830 | 85.0 | 0.000124 | 0.0179 | 0.0093 |
| Conveyor B1 to Conveyor D1 | FH-004 | 144.2 | 150,000 | 0.000830 | 85.0 | 0.000124 | 0.0179 | 0.0093 |
| Self-Unloading Barge to Conveyor D1 | FH-005 | 144.2 | 150,000 | 0.000830 | 25.0 | 0.000622 | 0.0897 | 0.0467 |
| Conveyor D1 to Conveyor E1 | FH-006 | 144.2 | 150,000 | 0.000830 | 85.0 | 0.000124 | 0.0179 | 0.0093 |
| Conveyor E1 to Conveyor Y | FH-007 | 144.2 | 150,000 | 0.000830 | 90.0 | 0.000083 | 0.0120 | 0.0062 |
| Conveyor Y to Conveyor Z | FH-008a | 144.2 | 150,000 | 0.000830 | 90.0 | 0.000083 | 0.0120 | 0.0062 |
| Conveyor Z to Petcoke Storage Pile | FH-008b | 144.2 | 150,000 | 0.000830 | 90.0 | 0.000083 | 0.0120 | 0.0062 |
| **New Equipment** | | | | | | | | |
| Front-End Loader Reclaim from Petcoke Storage Pile to PetcokeTrucks | PET-1 | 144.2 | 150,000 | 0.000830 | 90.0 | 0.000083 | 0.0120 | 0.0062 |
| | | | | | | **Totals** | **0.3709** | **0.1929** |

## SOURCES OF INPUT DATA

| Parameter | Data Source |
|---|---|
| Mean Wind Speed, mph | Climate of the States (Tampa, FL), Third Edition, 1985. |
| Material Moisture Content | TEC, 2003. |
| Material Transfer Point Identification | TEC, 2003. |
| Material Transfer Rates | TEC, 2003. |
| Control Efficiency | Table 3.2.17-2, Workbook on Estimation and Dispersion Modeling for Fugitive Particulate Sources, UARG, September 1981. |

## NOTES AND OBSERVATIONS

1. Material transfer rates based on 8 hrs/dy, 5 dys/wk, and 26 wks/yr operation.
2. Control Efficiencies: Side Enclosure (25%), Enclosure (85%), Treated With Dust Suppressant (90%).

## DATA CONTROL

| | | | |
|---|---|---|---|
| Data Collected by: | L. Crouch | Date: | 12/03 |
| Evaluated by: | T. Davis | Date: | 5/04 |
| Data Entered by: | T. Davis | Date: | 5/04 |

# EMISSION INVENTORY WORKSHEET

**Tampa Electric Company - Big Bend Station**

**Petcoke Transloading**

## EMISSION SOURCE TYPE

**FUGITIVE $PM_{10}$ - MATERIAL TRANSFER (DROPS)** — **Figure:**

## FACILITY AND SOURCE DESCRIPTION

| | |
|---|---|
| Emission Source Description: | Fugitive $PM_{10}$ - Transloading of Petroleum Coke |
| Emission Control Method(s)/ID No.(s): | Moist material, application of chemical surfactant |
| Emission Point ID: | FH-001 thru FH-008b, PET-01 |

## EMISSION ESTIMATION EQUATIONS

$PM_{10}$ Emission (lb/hr) = 0.35 x 0.0032 x [(Wind Speed/5)$^{1.3}$ / (Material Moisture Content/2)$^{1.4}$] x Material Handled (ton/hr)

$PM_{10}$ Emission (ton/yr) = 0.35 x 0.0032 x [(Wind Speed/5)$^{1.3}$ / (Material Moisture Content/2)$^{1.4}$] x Material Handled (ton/yr) x (1 ton/2,000 lb)

Source: Section 13.2.4, AP-42, January 1995.

## INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed: 8.6 mph

Material Moisture Content: 7.0 weight %

| Material Transfer Point | Source ID | Material Transfer Rates (ton/hr) | Material Transfer Rates (ton/yr) | Uncontrolled Emission Factor (lb PM/ton) | Control Efficiency (%) | Controlled Emission Factor (lb PM/ton) | Potential $PM_{10}$ Emission Rates (lb/hr) | Potential $PM_{10}$ Emission Rates (ton/yr) |
|---|---|---|---|---|---|---|---|---|
| **Existing Equipment** | | | | | | | | |
| Barge Clamshell to Conveyor D1 | FH-001 | 144.2 | 150,000 | 0.000392 | 25.0 | 0.000294 | 0.0424 | 0.0221 |
| Barge Bucket Elevator to Conveyor A1 | FH-002 | 144.2 | 150,000 | 0.000392 | 25.0 | 0.000294 | 0.0424 | 0.0221 |
| Conveyor A1 to Conveyor B1 | FH-003 | 144.2 | 150,000 | 0.000392 | 85.0 | 0.000059 | 0.0085 | 0.0044 |
| Conveyor B1 to Conveyor D1 | FH-004 | 144.2 | 150,000 | 0.000392 | 85.0 | 0.000059 | 0.0085 | 0.0044 |
| Self-Unloading Barge to Conveyor D1 | FH-005 | 144.2 | 150,000 | 0.000392 | 25.0 | 0.000294 | 0.0424 | 0.0221 |
| Conveyor D1 to Conveyor E1 | FH-006 | 144.2 | 150,000 | 0.000392 | 85.0 | 0.000059 | 0.0085 | 0.0044 |
| Conveyor E1 to Conveyor Y | FH-007 | 144.2 | 150,000 | 0.000392 | 90.0 | 0.000039 | 0.0057 | 0.0029 |
| Conveyor Y to Conveyor Z | FH-008a | 144.2 | 150,000 | 0.000392 | 90.0 | 0.000039 | 0.0057 | 0.0029 |
| Conveyor Z to Petcoke Storage Pile | FH-008b | 144.2 | 150,000 | 0.000392 | 90.0 | 0.000039 | 0.0057 | 0.0029 |
| **New Equipment** | | | | | | | | |
| Front-End Loader Reclaim from Petcoke Storage Pile to PetcokeTrucks | PET-1 | 144.2 | 150,000 | 0.000392 | 90.0 | 0.000039 | 0.0057 | 0.0029 |
| | | | | | | Totals | **0.1754** | **0.0912** |

## SOURCES OF INPUT DATA

| Parameter | Data Source |
|---|---|
| Mean Wind Speed, mph | Climate of the States (Tampa, FL), Third Edition, 1985. |
| Material Moisture Content | TEC, 2003. |
| Material Transfer Point Identification | TEC, 2003. |
| Material Transfer Rates | TEC, 2003. |
| Control Efficiency | Table 3.2.17-2, Workbook on Estimation and Dispersion Modeling for Fugitive Particulate Sources, UARG, September 1981. |

## NOTES AND OBSERVATIONS

1. Material transfer rates based on 8 hrs/dy, 5 dys/wk, and 26 wks/yr operation.
2 Control Efficiencies: Side Enclosure (25%), Enclosure (85%), Treated With Dust Suppressant (90%).

## DATA CONTROL

| | | | |
|---|---|---|---|
| Data Collected by: | L. Crouch | Date: | 12/03 |
| Evaluated by: | T. Davis | Date: | 5/04 |
| Data Entered by: | T. Davis | Date: | 5/04 |

# EMISSION INVENTORY WORKSHEET

**Tampa Electric Company - Big Bend Station**

**PET-02**

**Petcoke Trucks**

## EMISSION SOURCE TYPE

**FUGITIVE PM - TRUCK TRAFFIC ON PAVED ROADS**

## FACILITY AND SOURCE DESCRIPTION

| | |
|---|---|
| Emission Source Description: | Fugitive PM - Transloading of Petroleum Coke; Truck Traffic on Paved Roads |
| Emission Control Method(s)/ID No.(s): | Watering, As Necessary |
| Emission Point ID: | PET-02 |

## EMISSION ESTIMATION EQUATIONS

PM Emission (lb/hr) = ((0.082 x [(Silt Loading Factor/2)$^{0.65}$] x [(Truck Weight/3)$^{1.5)}$ - 0.00047) x (1 - ("Wet" Days/1,460)) x Vehicle Miles Traveled (VMT)/hr

PM Emission (ton/yr) = ((0.082 x [(Silt Loading Factor/2)$^{0.65}$] x [(Truck Weight/3)$^{1.5)}$ - 0.00047) x (1-("Wet" Days/1,460)) x Vehicle Miles Traveled (VMT)/yr x (1 ton/2,000 lb)

Source: Section 13.2.1, AP-42, November 2003.

## INPUT DATA AND EMISSIONS CALCULATIONS

| | | | | | |
|---|---|---|---|---|---|
| Controlled Silt Loading Factor: | 0.97 | g/m$^2$ | Mean Annual Number of "Wet" Days: | 100 | |
| Operating Hours: | 8 | hr/dy | 5 dy/wk | 26 | wk/yr |
| Petcoke Shipped by Truck: | 150,000 | ton/yr | Truck Travel Distance (one way): | 1,600 | ft |
| Hourly Truck Count: | 11 | trucks/hr | Annual Truck Count: | 11,538 | trucks/yr |

| Truck Traffic Type | Source ID | Vehicle Miles Traveled (VMT/hr) | Vehicle Miles Traveled (VMT/yr) | Vehicle Weight (ton) | Control Efficiency (%) | Potential PM Emission Rates (lb/hr) | Potential PM Emission Rates (ton/yr) |
|---|---|---|---|---|---|---|---|
| Petcoke Trucks (Empty) | PET-02a | 3.362 | 3,497 | 13.0 | 90.0 | 1.446 | 0.752 |
| Petcoke Trucks (Full) | PET-02b | 3.362 | 3,497 | 26.0 | 90.0 | 4.092 | 2.128 |
| | | | | | | | |
| | | | | | **Totals** | **5.54** | **2.880** |

## SOURCES OF INPUT DATA

| Parameter | Data Source |
|---|---|
| Controlled Silt Loading Factor | Based on factor for iron and steel production and overall 90% control efficiency, ECT, 2003. |
| Mean Annual Number of "Wet" Days | Figure 13.2.1-2, Section 13.2.1, AP-42, November 2003. |
| Vehicle Miles Traveled, VMT | TEC, 2003. |
| Truck Weights, ton | TEC, 2003. |
| Control Efficiency | Estimated, ECT 2003. |

## NOTES AND OBSERVATIONS

## DATA CONTROL

| | | | |
|---|---|---|---|
| **Data Collected by:** | L. Crouch | **Date:** | 12/03 |
| **Evaluated by:** | T. Davis | **Date:** | 12/03 |
| **Data Entered by:** | T. Davis | **Date:** | 12/03 |

# EMISSION INVENTORY WORKSHEET

**Tampa Electric Company - Big Bend Station**

**PET-02**

**Petcoke Trucks**

## EMISSION SOURCE TYPE

**FUGITIVE $PM_{10}$ - TRUCK TRAFFIC ON PAVED ROADS**

## FACILITY AND SOURCE DESCRIPTION

| | |
|---|---|
| Emission Source Description: | Fugitive $PM_{10}$ - Transloading of Petroleum Coke; Truck Traffic on Paved Roads |
| Emission Control Method(s)/ID No.(s): | Watering, As Necessary |
| Emission Point ID: | PET-02 |

## EMISSION ESTIMATION EQUATIONS

$PM_{10}$ Emission (lb/hr) = ((0.016 x [(Silt Loading Factor/2)$^{0.65}$] x [(Truck Weight/3)$^{1.5)}$ - 0.00047) x (1 - ("Wet" Days/1,460)) x Vehicle Miles Traveled (VMT)/hr

$PM_{10}$ Emission (ton/yr) = ((0.016 x [(Silt Loading Factor/2)$^{0.65}$] x [(Truck Weight/3)$^{1.5)}$ - 0.00047) x (1-("Wet" Days/1,460)) x Vehicle Miles Traveled (VMT)/yr x (1 ton/2,000 lb)

Source: Section 13.2.1, AP-42, November 2003.

## INPUT DATA AND EMISSIONS CALCULATIONS

| | | | | | |
|---|---|---|---|---|---|
| Controlled Silt Loading Factor: | 0.97 | $g/m^2$ | Mean Annual Number of "Wet" Days: | 100 | |
| Operating Hours: | 8 | hr/dy | 5 dy/wk | 26 | wk/yr |
| Petcoke Shipped by Truck: | 150,000 | ton/yr | Truck Travel Distance (one way): | 1,600 | ft |
| Hourly Truck Count: | 11 | trucks/hr | Annual Truck Count: | 11,538 | trucks/yr |

| Truck Traffic Type | Source ID | Vehicle Miles Traveled (VMT/hr) | Vehicle Miles Traveled (VMT/yr) | Vehicle Weight (ton) | Control Efficiency (%) | Potential $PM_{10}$ Emission Rates (lb/hr) | Potential $PM_{10}$ Emission Rates (ton/yr) |
|---|---|---|---|---|---|---|---|
| Petcoke Trucks (Empty) | PET-02a | 3.362 | 3,497 | 13.0 | 90.0 | 0.281 | 0.146 |
| Petcoke Trucks (Full) | PET-02b | 3.362 | 3,497 | 26.0 | 90.0 | 0.797 | 0.415 |
| | | | | | | | |
| | | | | | Totals | **1.08** | **0.561** |

## SOURCES OF INPUT DATA

| Parameter | Data Source |
|---|---|
| Controlled Silt Loading Factor | Based on factor for iron and steel production and overall 90% control efficiency, ECT, 2003. |
| Mean Annual Number of "Wet" Days | Figure 13.2.1-2, Section 13.2.1, AP-42, November 2003. |
| Vehicle Miles Traveled, VMT | TEC, 2003. |
| Truck Weights, ton | TEC, 2003. |
| Control Efficiency | Estimated, ECT 2003. |

## NOTES AND OBSERVATIONS

## DATA CONTROL

| | | | |
|---|---|---|---|
| **Data Collected by:** | L. Crouch | **Date:** | 12/03 |
| **Evaluated by:** | T. Davis | **Date:** | 12/03 |
| **Data Entered by:** | T. Davis | **Date:** | 12/03 |

# EMISSION INVENTORY WORKSHEET

Tampa Electric Company - Big Bend Station

Slag Transloading

## EMISSION SOURCE TYPE

FUGITIVE PM - MATERIAL TRANSFER (DROPS)

Figure:

## FACILITY AND SOURCE DESCRIPTION

| | |
|---|---|
| Emission Source Description: | Fugitive PM - Transloading of Slag |
| Emission Control Method(s)/ID No.(s): | Moist material, enclosures |
| Emission Point ID: | FH-001 thru FH-008b, PET-01 |

## EMISSION ESTIMATION EQUATIONS

PM Emission (lb/hr) = 0.74 x 0.0032 x [(Wind Speed/5)$^{1.3}$ / (Material Moisture Content/2)$^{1.4}$] x Material Handled (ton/hr)

PM Emission (ton/yr) = 0.74 x 0.0032 x [(Wind Speed/5)$^{1.3}$ / (Material Moisture Content/2)$^{1.4}$] x Material Handled (ton/yr) x (1 ton/2,000 lb)

Source: Section 13.2.4, AP-42, January 1995.

## INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed: 8.6 mph

Material Moisture Content: 6.22 weight %

| Material Transfer Point | Source ID | Material Transfer Rates (ton/hr) | Material Transfer Rates (ton/yr) | Uncontrolled Emission Factor (lb PM/ton) | Control Efficiency (%) | Controlled Emission Factor (lb PM/ton) | Potential PM Emission Rates (lb/hr) | Potential PM Emission Rates (ton/yr) |
|---|---|---|---|---|---|---|---|---|
| **Existing Equipment** | | | | | | | | |
| Barge Clamshell to Conveyor D1 | FH-001 | 144.2 | 150,000 | 0.000979 | 25.0 | 0.000734 | 0.1059 | 0.0551 |
| Barge Bucket Elevator to Conveyor A1 | FH-002 | 144.2 | 150,000 | 0.000979 | 0.0 | 0.000979 | 0.1412 | 0.0734 |
| Conveyor A1 to Conveyor B1 | FH-003 | 144.2 | 150,000 | 0.000979 | 85.0 | 0.000147 | 0.0212 | 0.0110 |
| Conveyor B1 to Conveyor D1 | FH-004 | 144.2 | 150,000 | 0.000979 | 85.0 | 0.000147 | 0.0212 | 0.0110 |
| Self-Unloading Barge to Conveyor D1 | FH-005 | 144.2 | 150,000 | 0.000979 | 0.0 | 0.000979 | 0.1412 | 0.0734 |
| Conveyor D1 to Conveyor E1 | FH-006 | 144.2 | 150,000 | 0.000979 | 85.0 | 0.000147 | 0.0212 | 0.0110 |
| Conveyor E1 to Conveyor Y | FH-007 | 144.2 | 150,000 | 0.000979 | 85.0 | 0.000147 | 0.0212 | 0.0110 |
| Conveyor Y to Conveyor Z | FH-008a | 144.2 | 150,000 | 0.000979 | 0.0 | 0.000979 | 0.1412 | 0.0734 |
| Conveyor Z to Petcoke Storage Pile | FH-008b | 144.2 | 150,000 | 0.000979 | 0.0 | 0.000979 | 0.1412 | 0.0734 |
| **New Equipment** | | | | | | | | |
| Front-End Loader Reclaim from Slag Storage Pile to SlagTrucks | PET-1 | 144.2 | 150,000 | 0.000979 | 90.0 | 0.000098 | 0.0141 | 0.0073 |
| | | | | | | Totals | **0.7694** | **0.4001** |

## SOURCES OF INPUT DATA

| Parameter | Data Source |
|---|---|
| Mean Wind Speed, mph | Climate of the States (Tampa, FL), Third Edition, 1985. |
| Material Moisture Content | TEC, 2003. |
| Material Transfer Point Identification | TEC, 2003. |
| Material Transfer Rates | TEC, 2003. |
| Control Efficiency | Table 3.2.17-2, Workbook on Estimation and Dispersion Modeling for Fugitive Particulate Sources, UARG, September 1981. |

## NOTES AND OBSERVATIONS

1. Material transfer rates based on 8 hrs/dy, 5 dys/wk, and 26 wks/yr operation.
2 Control Efficiencies: Side Enclosure (25%), Enclosure (85%)

## DATA CONTROL

| | | | |
|---|---|---|---|
| Data Collected by: | S. Castro | Date: | 6/04 |
| Evaluated by: | T. Davis | Date: | 6/04 |
| Data Entered by: | T. Davis | Date: | 6/04 |

# EMISSION INVENTORY WORKSHEET

**Tampa Electric Company - Big Bend Station**

**Slag Transloading**

## EMISSION SOURCE TYPE

**FUGITIVE $PM_{10}$ - MATERIAL TRANSFER (DROPS)** — Figure:

## FACILITY AND SOURCE DESCRIPTION

| | |
|---|---|
| Emission Source Description: | Fugitive $PM_{10}$ - Transloading of Slag |
| Emission Control Method(s)/ID No.(s): | Moist material |
| Emission Point ID: | FH-001 thru FH-008b, PET-01 |

## EMISSION ESTIMATION EQUATIONS

$PM_{10}$ Emission (lb/hr) = 0.35 x 0.0032 x [(Wind Speed/5)$^{1.3}$ / (Material Moisture Content/2)$^{1.4}$] x Material Handled (ton/hr)

$PM_{10}$ Emission (ton/yr) = 0.35 x 0.0032 x [(Wind Speed/5)$^{1.3}$ / (Material Moisture Content/2)$^{1.4}$] x Material Handled (ton/yr) x (1 ton/2,000 lb)

Source: Section 13.2.4, AP-42, January 1995.

## INPUT DATA AND EMISSIONS CALCULATIONS

Mean Wind Speed: 8.6 mph

Material Moisture Content: 6.22 weight %

| Material Transfer Point | Source ID | Material Transfer Rates (ton/hr) | Material Transfer Rates (ton/yr) | Uncontrolled Emission Factor (lb PM/ton) | Control Efficiency (%) | Controlled Emission Factor (lb PM/ton) | Potential $PM_{10}$ Emission Rates (lb/hr) | Potential $PM_{10}$ Emission Rates (ton/yr) |
|---|---|---|---|---|---|---|---|---|
| **Existing Equipment** | | | | | | | | |
| Barge Clamshell to Conveyor D1 | FH-001 | 144.2 | 150,000 | 0.000463 | 25.0 | 0.000347 | 0.0501 | 0.0260 |
| Barge Bucket Elevator to Conveyor A1 | FH-002 | 144.2 | 150,000 | 0.000463 | 0.0 | 0.000463 | 0.0668 | 0.0347 |
| Conveyor A1 to Conveyor B1 | FH-003 | 144.2 | 150,000 | 0.000463 | 85.0 | 0.000069 | 0.0100 | 0.0052 |
| Conveyor B1 to Conveyor D1 | FH-004 | 144.2 | 150,000 | 0.000463 | 85.0 | 0.000069 | 0.0100 | 0.0052 |
| Self-Unloading Barge to Conveyor D1 | FH-005 | 144.2 | 150,000 | 0.000463 | 0.0 | 0.000463 | 0.0668 | 0.0347 |
| Conveyor D1 to Conveyor E1 | FH-006 | 144.2 | 150,000 | 0.000463 | 85.0 | 0.000069 | 0.0100 | 0.0052 |
| Conveyor E1 to Conveyor Y | FH-007 | 144.2 | 150,000 | 0.000463 | 85.0 | 0.000069 | 0.0100 | 0.0052 |
| Conveyor Y to Conveyor Z | FH-008a | 144.2 | 150,000 | 0.000463 | 0.0 | 0.000463 | 0.0668 | 0.0347 |
| Conveyor Z to Petcoke Storage Pile | FH-008b | 144.2 | 150,000 | 0.000463 | 0.0 | 0.000463 | 0.0668 | 0.0347 |
| **New Equipment** | | | | | | | | |
| Front-End Loader Reclaim from Slag Storage Pile to SlagTrucks | PET-1 | 144.2 | 150,000 | 0.000463 | 90.0 | 0.000046 | 0.0067 | 0.0035 |
| | | | | | | Totals | **0.3639** | **0.1892** |

## SOURCES OF INPUT DATA

| Parameter | Data Source |
|---|---|
| Mean Wind Speed, mph | Climate of the States (Tampa, FL), Third Edition, 1985. |
| Material Moisture Content | TEC, 2003. |
| Material Transfer Point Identification | TEC, 2003. |
| Material Transfer Rates | TEC, 2003. |
| Control Efficiency | Table 3.2.17-2, Workbook on Estimation and Dispersion Modeling for Fugitive Particulate Sources, UARG, September 1981. |

## NOTES AND OBSERVATIONS

1. Material transfer rates based on 8 hrs/dy, 5 dys/wk, and 26 wks/yr operation.
2. Control Efficiencies: Side Enclosure (25%), Enclosure (85%), Treated With Dust Suppressant (90%).

## DATA CONTROL

| | | | |
|---|---|---|---|
| Data Collected by: | S. Castro | Date: | 6/04 |
| Evaluated by: | T. Davis | Date: | 6/04 |
| Data Entered by: | T. Davis | Date: | 6/04 |

# EMISSION INVENTORY WORKSHEET

**Tampa Electric Company - Big Bend Station**

**SLAG-02**

**Slag Trucks**

## EMISSION SOURCE TYPE

**FUGITIVE PM - TRUCK TRAFFIC ON PAVED ROADS**

## FACILITY AND SOURCE DESCRIPTION

| | |
|---|---|
| Emission Source Description: | Fugitive PM - Transloading of Slag; Truck Traffic on Paved Roads |
| Emission Control Method(s)/ID No.(s): | Watering, As Necessary |
| Emission Point ID: | PET-02 |

## EMISSION ESTIMATION EQUATIONS

PM Emission (lb/hr) = ((0.082 x [(Silt Loading Factor/2)$^{0.65}$] x [(Truck Weight/3)$^{1.5)}$ - 0.00047) x (1 - ("Wet" Days/1,460)) x Vehicle Miles Traveled (VMT)/hr

PM Emission (ton/yr) = ((0.082 x [(Silt Loading Factor/2)$^{0.65}$] x [(Truck Weight/3)$^{1.5)}$ - 0.00047) x (1-("Wet" Days/1,460)) x Vehicle Miles Traveled (VMT)/yr x (1 ton/2,000 lb)

Source: Section 13.2.1, AP-42, November 2003.

## INPUT DATA AND EMISSIONS CALCULATIONS

| | | | | | |
|---|---|---|---|---|---|
| Controlled Silt Loading Factor: | 0.97 | g/m$^2$ | Mean Annual Number of "Wet" Days: | 100 | |
| Operating Hours: | 8 | hr/dy | 5 dy/wk | 26 | wk/yr |
| Slag Shipped by Truck: | 150,000 | ton/yr | Truck Travel Distance (one way): | 1,600 | ft |
| Hourly Truck Count: | 11 | trucks/hr | Annual Truck Count: | 11,538 | trucks/yr |

| Truck Traffic Type | Source ID | Vehicle Miles Traveled (VMT/hr) | Vehicle Miles Traveled (VMT/yr) | Vehicle Weight (ton) | Control Efficiency (%) | Potential PM Emission Rates (lb/hr) | Potential PM Emission Rates (ton/yr) |
|---|---|---|---|---|---|---|---|
| Slag Trucks (Empty) | SLAG-02a | 3.362 | 3,497 | 13.0 | 90.0 | 1.446 | 0.752 |
| Slag Trucks (Full) | SLAG-02b | 3.362 | 3,497 | 26.0 | 90.0 | 4.092 | 2.128 |
| | | | | | | | |
| | | | | | **Totals** | **5.54** | **2.880** |

## SOURCES OF INPUT DATA

| Parameter | Data Source |
|---|---|
| Controlled Silt Loading Factor | Based on factor for iron and steel production and overall 90% control efficiency, ECT, 2003. |
| Mean Annual Number of "Wet" Days | Figure 13.2.1-2, Section 13.2.1, AP-42, November 2003. |
| Vehicle Miles Traveled, VMT | TEC, 2004. |
| Truck Weights, ton | TEC, 2004. |
| Control Efficiency | Estimated, ECT 2004. |
| | |

## NOTES AND OBSERVATIONS

## DATA CONTROL

| | | | |
|---|---|---|---|
| **Data Collected by:** | S. Castro | **Date:** | 5/04 |
| **Evaluated by:** | T. Davis | **Date:** | 5/04 |
| **Data Entered by:** | T. Davis | **Date:** | 5/04 |

# EMISSION INVENTORY WORKSHEET

**Tampa Electric Company - Big Bend Station**

**SLAG-02**

**Slag Trucks**

## EMISSION SOURCE TYPE

**FUGITIVE $PM_{10}$ - TRUCK TRAFFIC ON PAVED ROADS**

## FACILITY AND SOURCE DESCRIPTION

| | |
|---|---|
| Emission Source Description: | Fugitive $PM_{10}$ - Transloading of Slag; Truck Traffic on Paved Roads |
| Emission Control Method(s)/ID No.(s): | Watering, As Necessary |
| Emission Point ID: | SLAG-02 |

## EMISSION ESTIMATION EQUATIONS

$PM_{10}$ Emission (lb/hr) = ((0.016 x [(Silt Loading Factor/2)$^{0.65}$] x [(Truck Weight/3)$^{1.5)}$ - 0.00047) x (1 - ("Wet" Days/1,460)) x Vehicle Miles Traveled (VMT)/hr

$PM_{10}$ Emission (ton/yr) = ((0.016 x [(Silt Loading Factor/2)$^{0.65}$] x [(Truck Weight/3)$^{1.5)}$ - 0.00047) x (1-("Wet" Days/1,460)) x Vehicle Miles Traveled (VMT)/yr x (1 ton/2,000 lb)

Source: Section 13.2.1, AP-42, November 2003.

## INPUT DATA AND EMISSIONS CALCULATIONS

| | | | | | |
|---|---|---|---|---|---|
| Controlled Silt Loading Factor: | 0.97 | $g/m^2$ | Mean Annual Number of "Wet" Days: | 100 | |
| Operating Hours: | 8 | hr/dy | 5 dy/wk | 26 | wk/yr |
| Slag Shipped by Truck: | 150,000 | ton/yr | Truck Travel Distance (one way): | 1,600 | ft |
| Hourly Truck Count: | 11 | trucks/hr | Annual Truck Count: | 11,538 | trucks/yr |

| Truck Traffic Type | Source ID | Vehicle Miles Traveled (VMT/hr) | Vehicle Miles Traveled (VMT/yr) | Vehicle Weight (ton) | Control Efficiency (%) | Potential $PM_{10}$ Emission Rates (lb/hr) | Potential $PM_{10}$ Emission Rates (ton/yr) |
|---|---|---|---|---|---|---|---|
| Slag Trucks (Empty) | SLAG-02a | 3.362 | 3,497 | 13.0 | 90.0 | 0.281 | 0.146 |
| Slag Trucks (Full) | SLAG-02b | 3.362 | 3,497 | 26.0 | 90.0 | 0.797 | 0.415 |
| | | | | | | | |
| | | | | | **Totals** | **1.08** | **0.561** |

## SOURCES OF INPUT DATA

| Parameter | Data Source |
|---|---|
| Controlled Silt Loading Factor | Based on factor for iron and steel production and overall 90% control efficiency, ECT, 2003. |
| Mean Annual Number of "Wet" Days | Figure 13.2.1-2, Section 13.2.1, AP-42, November 2003. |
| Vehicle Miles Traveled, VMT | TEC, 2004. |
| Truck Weights, ton | TEC, 2004. |
| Control Efficiency | Estimated, ECT 2004. |

## NOTES AND OBSERVATIONS

## DATA CONTROL

| | | | |
|---|---|---|---|
| **Data Collected by:** | S. Castro | **Date:** | 5/04 |
| **Evaluated by:** | T. Davis | **Date:** | 5/04 |
| **Data Entered by:** | T. Davis | **Date:** | 5/04 |

# Attachment B

**ATTACHMENT B**

**TAMPA ELECTRIC COMPANY**
**BIG BEND STATION**
**HANDLING OF COAL, PETROLEUM COKE, AND SLAG**

**Professional Engineer Certification**

Professional Engineer Statement:

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

*(1) To the best of my knowledge, the information presented in the response by Tampa Electric Company (TEC) to the Department's April 9, 2004 request for additional information concerning the handling of coal, petroleum coke, and slag at TEC's Big Bend Station is true, accurate, and complete based on my review of material provided by TEC engineering and environmental staff; and*

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

Signature

6/8/04
Date

(seal)

* Certification is applicable to the Tampa Electric Company (TEC) response to the Department's April 9, 2004 request for additional information regarding the handling of coal, petroleum coke, and slag at its Big Bend Station.

# Attachment C

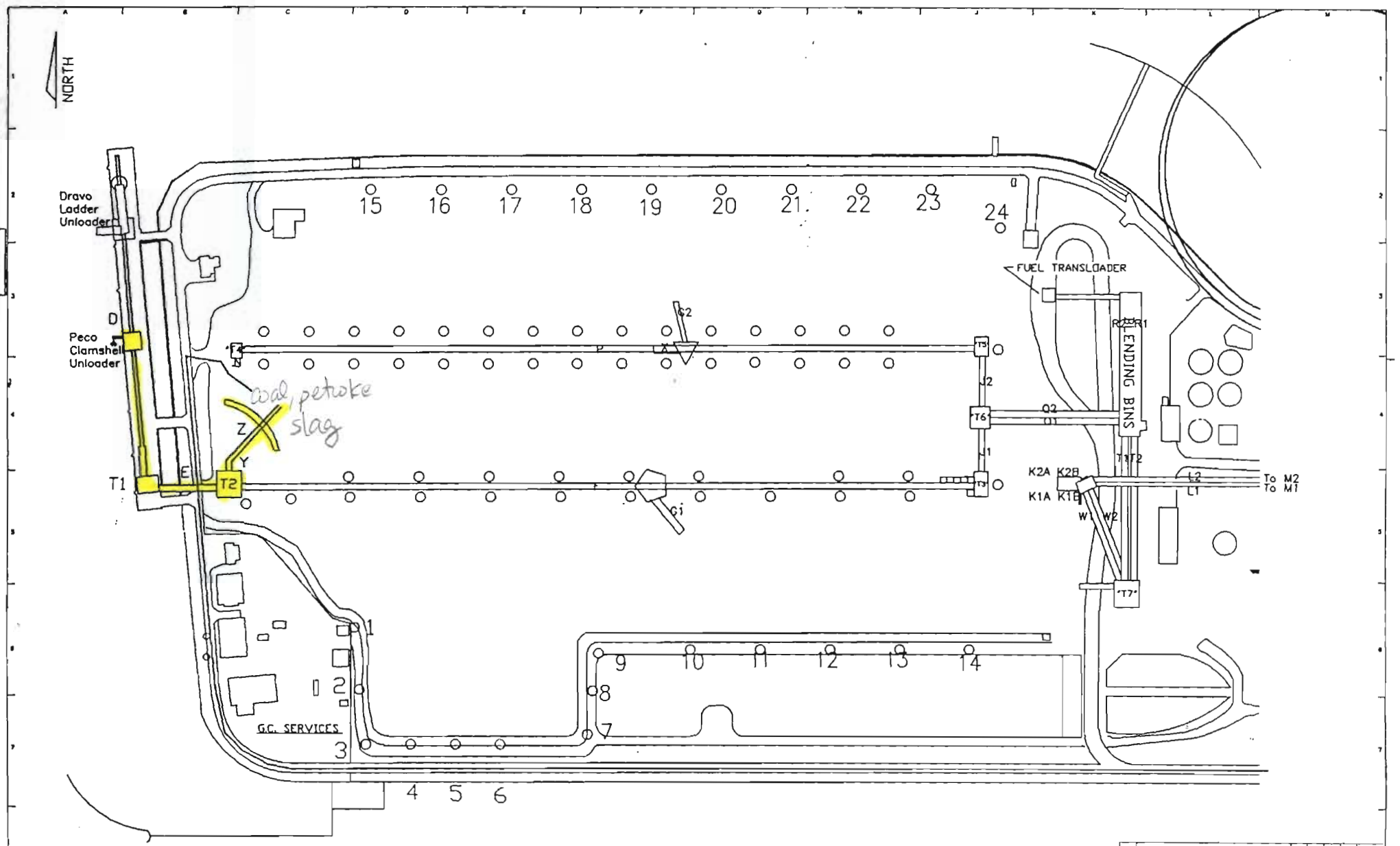
## Responsible Official Certification

I have reviewed this letter of request for a generic permit exemption to transport and temporarily store coal, petcoke, and slag at Big Bend Station. I hereby certify that these documents are authentic and accurate to the best of my knowledge.

Date: 6/11/04

Signature: Karen A. Sheffield
General Manager
Big Bend Station

# Attachment D




Coalfield General Arrangement 2004

Current Yard