Phillips, Cindy

From:

Phillips, Cindy

Sent:

Friday, April 09, 2004 12:13 PM

To:

'Ircrouch@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.

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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.

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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/PM₁₀ Emission Estimates

	Emission	Potential Emission Rates						
Emission Point	Point	PM	1	PM	10			
Description	ID	(lb/hr)	(tpy)	(lb/hr)	(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. 7 97	0.415			
Totals		5.950	3.094	1.273	0.662			

Source: ECT, 2004.

E	MISSION II	NVENTO	RY WOF	RKSHEET	•			Coal
	Tampa Elect	ric Company	- Big Ben	d Station				Transloading
					1 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			•
	TIVE PM - MATE	ERIAL TRANS	SFER (DRO	OPS)	ale in a		Figure:	
				DESCRIPTIO	N	. , 1 x 3 2		
Emission Source Description:	•	- Transloading o			· · · · · · · · · · · · · · · · · · ·			<u>. </u>
Emission Control Method(s)/ID No.(s):		al, application of		ectant				
Emission Point ID:		FH-008b, COAL						
Service Control of the Control of th		EMISSION ES	STIMATION	I EQUATION:	3		- A.,	
·					,,			
PM Emission (lb/hr) ≈ 0.74 x 0.0032 x [(Wind Speed/5)1.3 / (Material Moisture	Content/2)¹.⁴] x Ma	terial Handled (ton/hr)				
PM Emission (ton/yr) = $0.74 \times 0.0032 \times \text{[(Wind Speed)]}$	5) ^{1.3} / (Material Moistur	e Content/2) ^{1,4}] x M	aterial Handled	(ton/yr) x (1 ton/2,0	00 lb)			
Source: Section 13.2.4, AP-42, January 1995.			•					
					,			
	INPU	T DATA AND	EMISSION	S CALCULA	TIONS			
Mean Wind Speed:	8.6 mph	Material Moistu	re Content:		6.5	weight %		
				Uncontrolled		Controlled		
	Source	Mate	ial	Emission	Control	Emission	Pote	ential PM
Material Transfer Point	ID	Transfer		Factor	Efficiency	Factor	Emis	sion Rates
		(ton/hr)	(ton/yr)	(lb PM/ton)	(%)	(lb PM/ton)	(lb/hr)	(ton/yr)
<u> </u>								
Existing Equipment	511.004		450.000		25.0			
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 Conveyor Z to Coal Storage Pile	FH-008a FH-008b	144.2	150,000 150,000	0.000920	90.0	0.000092	0.0133	0.0069
Conveyor 2 to Coar Storage Fire	111-0000	144.2	150,000	0.000320	30.0	0.000032	0.0133	0,008
New Equipment							l	
Front-End Loader Reclaim from Coal Storage	COAL-1	144.2	150,000	0.000920	90.0	0.000092	0.0133	0.0069
Pile to CoalTrucks	33.12		100,000	5.555525	41.5	0.000002	0.01.00	0.000
, 110 60 40411140110						Totals	0,4115	0.2140
•								
								-
	ę (L.)	SOURCE	ES OF INP		* *			
Parameter Parameter				Da	ta Source			
Mean Wind Speed, mph	Climate of	the States (Tamp	a, FL), Third E	Edition, 1985.				
Material Moisture Content	TEC, 2003							
Material Transfer Point Identification	TEC, 2003							
Material Transfer Rates	TEC, 2003							
Control Efficiency				and Dispersion M	odeling for Fug	itive Particulate		
	Sources, U	JARG, Septembe					2	
	*	NOTES A	ND OBSE	RVATIONS			The second of the second	
. Material transfer rates based on 8 hrs/dy, 5 dy		-						
Control Efficiencies: Side Enclosure (25%), En	closure (85%), Trea		ppressant (90	%).				
		3.1		201	; ·			
	<u> </u>	DA	TA CONTR	ROL:	<u>* ' '</u> '.	- · · · · · ·		
	L. Crouch		TA CONTE	ROL:	· · · · · · · · · · · · · · · · · · ·		Date:	12/03
* & & * * * * * * * * * * * * * * * * *	L. Crouch		TA CONIF	ROL:	· · · · · · · · · · · · · · · · · · ·		_	<u> </u>

EMISSION INVENTORY WORKSHEET Coal Tampa Electric Company - Big Bend Station Transloading **EMISSION SOURCE TYPE** FUGITIVE PM10 - MATERIAL TRANSFER (DROPS) Figure: FACILITY AND SOURCE DESCRIPTION Emission Source Description: Fugitive PM₁₀ - 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_{to} 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) PM₁₀ 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: weight % Uncontrolled Controlled Potential PM₁₀ Source Material Emission Control Emission Transfer Rates Material Transfer Point ID Factor Efficiency Factor **Emission Rates** (ton/hr) (ton/vr) (lb PM/ton) (%) (lb PM/ton) (ib/hr) (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 FH-002 150,000 0.000435 Barge Bucket Elevator to Conveyor A1 144.2 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 FH-005 144.2 0.000435 Self-Unloading Barge to Conveyor D1 150,000 25.0 0.0245 0.000326 0.0471 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 FH-008a 150,000 0.000435 0.000044 0.0063 Conveyor Y to Conveyor Z 90.0 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 PET-1 144 2 150.000 0.000435 90 N 0.000044 0.0063 0.0033 Pile to CoalTrucks 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. TEC, 2003. Material Moisture Content 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** Material transfer rates based on 8 hrs/dy, 5 dys/wk, and 26 wks/yr operation Control Efficiencies: Side Enclosure (25%), Enclosure (85%), Treated With Dust Suppressant (90%). DATA CONTROL L. Crouch 12/03 Data Collected by: Date: Evaluated by: T. Davis Date: 5/04

T. Davis

Data Entered by:

5/04

Date:

EMISSION INVENTORY WORKSHEET COAL-02 Tampa Electric Company - Big Bend Station 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)^{0.85}| 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)^{6.65}] 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 g/m² Controlled Silt Loading Factor: 0.97 Mean Annual Number of "Wet" Days: 100 Operating Hours: 8 hr/dy 5 dy/wk Coal Shipped by Truck: 150,000 ton/yr Truck Travel Distance (one way): 1,600 ft 11,538 Hourly Truck Count: 11 trucks/hr Annual Truck Count: trucks/yr Vehicle Miles Vehicle Control Potential PM Source Truck Traffic Type ID Traveled Weight Efficiency **Emission Rates** (VMT/hr). (VMT/yr) (lb/hr) (ton) (%) (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 90.0 4.092 2.128 26.0 Totals 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. Estimated, ECT 2003. Control Efficiency NOTES AND OBSERVATIONS DATA CONTROL Data Collected by: S. Castro 5/04 Date: Evaluated by: T. Davis Date: 5/04 Data Entered by: T. Davis 5/04 Date:

EMISSION INVENTORY WORKSHEET COAL-02 Tampa Electric Company - Big Bend Station **Coal Trucks EMISSION SOURCE TYPE** FUGITIVE PM₁₀ - TRUCK TRAFFIC ON PAVED ROADS **FACILITY AND SOURCE DESCRIPTION Emission Source Description:** Fugitive PM₁₀ - 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** PM₁₀ 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 PM₁₀ 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 Mean Annual Number of "Wet" Days: Controlled Silt Loading Factor: 0.97 g/m² 100 Operating Hours: 8 hr/dy 5 dy/wk Coal Shipped by Truck: Truck Travel Distance (one way): 150,000 ton/yr 1,600 Hourly Truck Count: Annual Truck Count: 11,538 trucks/yr 11 trucks/hr Source Vehicle Miles Vehicle Control Potential PM₁₀ Truck Traffic Type ID Traveled Weight Efficiency **Emission Rates** (VMT/hr) (VMT/yr) (ton) (%) (lb/hr) (ton/yr) Coal Trucks (Empty) COAL-02a 3.362 3,497 13.0 90.0 0.281 0.146 COAL-02b Coal Trucks (Full) 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 8.77 DATA CONTROL Data Collected by: S. Castro 5/04 Date: Evaluated by: T. Davis Date: 5/04 Data Entered by: T. Davis Date: 5/04

EM	ISSION II	VVENTO	RY WOF	RKSHEET				Petcoke
	Tampa Elect	ric Company	- Big Ben	d Station				Transloading
			ON SOUR		* 1			
FUGITIV	E PM - MATE						Figure:	
	_			DESCRIPTIO	N	31.		
Emission Source Description:	Fugitive PM	- Transloading o	f Petroleum C	oke	,		,	
Emission Control Method(s)/ID No.(s):	Moist materia	al, application of	chemical surf	actant				
Emission Point ID:	FH-001 thru	FH-008b, PET-0	1					
		EMISSION ES	STIMATION	VEQUATIONS	\$		1,41,714.7	TSP SEA ST
				<u> </u>				
PM Emission (lb/hr) = 0.74 x 0.0032 x [(Wind Speed/5) ^{1.3} /	•			<u> </u>				
PM Emission (ton/yr) = 0.74 x 0.0032 x [(Wind Speed/5) ^{1.3}	/ (Material Moisture	e Content/2) ¹ / ₁ x M	laterial Handled	(ton/yr) x (1 ton/2,0	(00 lb)			
Source: Section 13.2.4, AP-42, January 1995.								
Source. Section 13.2.4, AF-42, January 1995.				<u> </u>				
	INPUT	DATA AND	EMISSION	IS CALCULAT	TIONS	* · · · · ·		
-	8.6 mph	Material Moist			7.0	weight %		27 1 1,5 4
mean vina opeea.	0.0 mpn	Waterial Word	ne Content.	Uncontrolled		Controlled		
	Source	Mate	rial	Emission	Control	Emission	Po	tential PM
Material Transfer Point	ID	Transfer	Rates	Factor	Efficiency	Factor	Emis	ssion Rates
<u> </u>		(ton/hr)	(ton/yr)	(lb PM/ton)	(%)	(ib PM/ton)	(ib/hr)	(ton/yr)
Existing Equipment				•				٠
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 Fouls west	1							
New Equipment Front-End Loader Reclaim from Petcoke Storage	PET-1	144.2	150,000	0.000830	90.0	0.000083	0.0120	0.0062
Pile to PetcokeTrucks	1,51-1	144.2	100,000	0.000000	55.5	0.00000	0.0120	0.5052
						Totals	0.3709	0.1929
_								
				,				
								·
		SOURCE	ES OF INP		<u> </u>		<u> </u>	
Parameter					ta Source			
Mean Wind Speed, mph		he States (Tamp	a, FL), Third I	Edition, 1985.				
Material Moisture Content	TEC, 2003.							
Material Transfer Point Identification	TEC, 2003.							
Material Transfer Rates Control Efficiency	TEC, 2003.		a Catimatics :	and Dispersion Me	adalina for Eur	itivo Dortioulata		<u>, </u>
Condoi Emidency	_	JARG, Septembe		and Dispersion Mi	ouening for Fug	iuve raiuculate		
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4. Notogal basefor extra based as 2 based as 2 based	and 00 whater		IND UDSEI	VANIONS		<u> </u>	- '	<u> </u>
 Material transfer rates based on 8 hrs/dy, 5 dys/wk Control Efficiencies: Side Enclosure (25%), Enclos 		-	nnreceast /00	1961				
2 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	oute (00%), Treat	1 14 5	.,	•		ing a second	1,1	ing. Paga ang ang ang ang ang
			TA CONTI	RUL	<u> </u>	Maria di Nasa	<u>. 1911, 1934</u> -	
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 Petcoke Tampa Electric Company - Big Bend Station **Transloading EMISSION SOURCE TYPE** FUGITIVE PM10 - MATERIAL TRANSFER (DROPS) Figure: FACILITY AND SOURCE DESCRIPTION Emission Source Description: Fugitive PM₁₀ - 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** PM₁₀ 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) PM₁₀ 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 % Uncontrolled Controlled **Emission** Emission Source Control Potential PM₁₀ Efficiency Material Transfer Point ID Transfer Rates Factor Factor **Emission Rates** (ton/hr) (ton/yr) (lb PM/ton) (%) (lb PM/ton) (lb/hr) (ton/yr) **Existing Equipment** FH-001 144 2 150,000 0.000392 25.0 Barge Clamshell to Conveyor D1 0.000294 0.0424 0.0221 FH-002 144.2 150,000 0.000392 25.0 0.000294 0.0221 Barge Bucket Elevator to Conveyor A1 0.0424 Conveyor A1 to Conveyor B1 FH-003 144.2 150,000 0.000392 85.0 0.000059 0.0085 0.0044 FH-004 0.0044 Conveyor B1 to Conveyor D1 144.2 150,000 0.000392 85.0 0.000059 0.0085 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 FH-007 0.0029 Conveyor E1 to Conveyor Y 144.2 150,000 0.000392 90.0 0.000039 0.0057 FH-008a 150,000 90.0 0.000039 0.0029 144.2 0.000392 0.0057 Conveyor Y to Conveyor Z 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 PET-1 144.2 150,000 0.000392 0.000039 0.0057 0.0029 Pile to PetcokeTrucks 0.0912 Totals 0.1754 SOURCES OF INPUT DATA **Data Source Parameter** Mean Wind Speed, mph Climate of the States (Tampa, FL), Third Edition, 1985. TEC, 2003. Material Moisture Content 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** Material transfer rates based on 8 hrs/dy, 5 dys/wk, and 26 wks/yr operation. Control Efficiencies: Side Enclosure (25%), Enclosure (85%), Treated With Dust Suppressant (90%). DATA CONTROL Data Collected by: L. Crouch 12/03 Date: Evaluated by: T. Davis 5/04 Date:

T. Davis

Data Entered by:

5/04

Date:

EMISSION INVENTORY WORKSHEET **PET-02** Tampa Electric Company - Big Bend Station **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) $^{0.85}$] 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 0.97 g/m² Controlled Silt Loading Factor: Mean Annual Number of "Wet" Days: 8 5 dy/wk Operating Hours: hr/dy Petcoke Shipped by Truck: 150,000 ton/yr Truck Travel Distance (one way): 1,600 ft Annual Truck Count: 11,538 Hourly Truck Count: 11 trucks/hr trucks/yr Source Vehicle Miles Vehicle Control Potential PM Weight **Emission Rates** Truck Traffic Type ID Traveled Efficiency (VMT/hr) (VMT/yr) (lb/hr) (ton) (%) (ton/yr) Petcoke Trucks (Empty) PET-02a 3.362 90.0 0.752 3,497 13.0 1.446 Petcoke Trucks (Full) PET-02b 3.362 3,497 26.0 90.0 4.092 2.128 5.54 Totals 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 13 8.5 **Data Collected by:** L. Crouch Date: 12/03 Evaluated by: T. Davis Date: 12/03 Data Entered by: T. Davis 12/03 Date:

EM	ISSION INVE	NTORY	WORKS	HEET			PET-02	
	Tampa Electric Co	mpany - Bi	ig Bend Sta	ation			Petcoke Trucks	
		MISSIONS	OURCE T	YPE	in the second			
	FUGITIVE PM₁	o - TRUCK	TRAFFIC O	N PAVED RO	DADS			
	FACILI	TY AND SO	URCE DES	CRIPTION	10 Jan 20 - 10 -			
Emission Source Description:	Fugitive PM	1 ₁₀ - Transloadi	ng of Petroleu	m Coke; Truck Tr	affic on Paved	Roads		
Emission Control Method(s)/ID No.(s):	Watering, A	As Necessary						
Emission Point ID:	PET-02							
	EMISS	ION ESTIM	ATION EQ	UATIONS				
PM ₁₀ Emission (lb/hr) = ((0.016 x [(Silt Loading F	actor/2) ^{0.65}] x [(Truck Weigh	/3) ^{1.5])} - 0.00047)	x (1 - ("Wet" Day	/s/1,460)) x Vehicle	Miles Traveled (\	/MT)/hr		
PM_{10} Emission (ton/yr) = ((0.016 x [(Silt Loading	Factor/2) ^{0.65}] x [(Truck Weig	1t/3) ^{1.5)))} - 0.00047	7) x (1-("Wet" Da	ys/1,460)) x Vehicle	Miles Traveled (/MT)/yr x (1 ton/2,00	00 lb)	
Source: Section 13.2.1, AP-42, November	r 2003.							
Karamatan Kabupatèn	INPUT DAT	A AND EMI	SSIONS CA	ALCULATION	IS			
Controlled Silt Loading Factor:	0.97 g/m²		I Number of "\		100			
Operating Hours:	8 hr/dy		dy/wk	26	wk/yr			
Petcoke Shipped by Truck:	150,000 ton/yr		Distance (one		1,600	ft		
Hourly Truck Count:	11 trucks/hr	Annual Truc		11,538	trucks/yr	1		
•								
	Source	Vehicl	e Miles	Vehicle	Control	Pote	ntial PM ₁₀	
Truck Traffic Type	ID	Trav	eled	Weight	Efficiency		sion Rates	
-		(VMT/hr)	(VMT/yr)	(ton)	(%)	(lb/hr)	(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	
					Tatala	4.00	0.564	
					Totals	1.08	0.561	
-					-			
			_			_		
			_		_			
	<u> </u>	OURCES O	F INPUT D	ATA				
Parameter				Data Sc	ource			
Controlled Silt Loading Factor	Based on	factor for iron a	nd steel produ	ction and overall	90% control ef	ficiency, ECT, 200	03.	
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	TEC, 2003.						
Truck Weights, ton	TEC, 2003.							
Control Efficiency	Estimated	, ECT 2003.					·	
	N. Y. W.	TES AND	DBSERVAT	IONS 🌎	Maria Cara Cara Cara Cara Cara Cara Cara	Markey Ch		
		DATA (CONTROL	· · · · · · · · · · · · · · · · · · ·			free of the family	
Data Collected by:	L. Crouc					Date:	12/03	
Evaluated by:	T. Davis					Date:	12/03	
	+							

E	MISSION II	NVENTOI	RY WOI	RKSHEET	-			Slag
	Tampa Elect	ric Company	- Big Ben	d Station				Transloading
		EMISSI	ON SOUR	E TYPE			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
- · · · · · · · · · · · · · · · · · · ·	IVE PM - MATI					01 Bit 1	Figure:	
the state of the s			•	DESCRIPTION)N	F 1		
Emission Source Description:		- Transloading o		DEGUINI TIC	// \			<u>* </u>
Emission Control Method(s)/ID No.(s):		ial, enclosures	i Siag					
Emission Point ID:		FH-008b, PET-0	1					
					<u> </u>	3 . 3		
		EMISSION ES	STIMATION	I EQUATION:	>*-	<u> </u>		
	12	- 44						
PM Emission (lb/hr) = 0.74 x 0.0032 x [(Wind Speed/5)								
PM Emission (ton/yr) = 0.74 x 0.0032 x [(Wind Speed/5	5)'- / (Material Moistur	e Content/2)'^] x M	laterial Handled	(ton/yr) x (1 ton/2,0	000 lb)		•	
							•	
Source: Section 13.2.4, AP-42, January 1995.								•
\$ \$ 1 m							4 N N	
	INPUT	T DATA AND	EMISSION	S CALCULA	TIONS		<u> </u>	
Mean Wind Speed:	8.6 mph	Material Moist	re Content:		6.22	weight %		4 8
	1			Uncontrolled		Controlled		
	Source	Mate	ial	Emission	Control	Emission	Pot	ential PM
Material Transfer Point	ID	Transfer	Rates	Factor	Efficiency	Factor	Emis	sion Rates
		(ton/hr)	(ton/yr)	(lb PM/ton)	(%)	(lb PM/ton)	(lb/hr)	(ton/yr)
				<u> </u>				
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	0.000704	0.1412	0.0734
Conveyor A1 to Conveyor B1	FH-003	144.2	150,000	0.000979	85.0	0.000373	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
Setf-Unloading Barge to Conveyor D1	FH-005	144.2	150,000	0.000979	0.0			
	FH-006				85.0	0.000979	0.1412	0.0734
Conveyor D1 to Conveyor E1		144.2	150,000	0.000979		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	PET-1	144.2	150,000	0.000979	90.0	0.000098	0.0141	0.0073
Pile to SlagTrucks								
						Totals	0.7694	0.4001
			_					
	ļ				1			
		SOURCE	S OF INP	JT DATA			1. 1600/25, 81-25-3	
Parameter					ta Source			
Mean Wind Speed, mph	Climate of t	he States (Tamp	a FI) Third F					
Material Moisture Content	TEC, 2003.		a, i E), iiiia E	- Laidori, 1000.				
Material Wolstone Content Material Transfer Point Identification	TEC, 2003.							
Material Transfer Rates	TEC, 2003.							
			o Estimation -	and Dienemian *4	adalina for Eva	itivo Portioulete		
Control Efficiency				nd Dispersion M	ouemy for rug	iuve rafficulate		
San	Sources, U	ARG, Septembe						
	<u>ta e la </u>	NOTES A	ND OBSER	RVATIONS	en di Santa de La Caracteria de la Carac	<u>+1 14111.</u>	<u> </u>	
 Material transfer rates based on 8 hrs/dy, 5 dys/ 	wk, and 26 wks/yr o	peration.						
Control Efficiencies: Side Enclosure (25%), Enc	losure (85%)	· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·				
	The system of a state	1 . Tell. DA	TA CONT	ROL		1.15. C. 17.	1 A 10 10 10 10 10	
		J MADA	ig contr	.U	* *	<u> </u>		
Data Collected by:	S. Castro						Date:	6/04
· ·								
Evaluated by:	T. Davis						Date:	6/04

EMISSION INVENTORY WORKSHEET Slag Tampa Electric Company - Big Bend Station Transloading **EMISSION SOURCE TYPE** FUGITIVE PM10 - MATERIAL TRANSFER (DROPS) Figure: **FACILITY AND SOURCE DESCRIPTION** Fugitive PM₁₀ - Transloading of Slag Emission Source Description: Emission Control Method(s)/ID No.(s): Moist material Emission Point ID: FH-001 thru FH-008b, PET-01 **EMISSION ESTIMATION EQUATIONS** PM₁₀ 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) PM₁₀ 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 8.6 mph Material Moisture Content: Mean Wind Speed: 6.22 weight % Uncontrolled Controlled Source Material Emission Control Emission Potential PM₁₀ Emission Rates Material Transfer Point ID Efficiency Transfer Rates Factor Factor (ton/hr) (lb PM/ton) (lb PM/ton) (lb/hr) (ton/vr) (%) (lon/vr) 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 144.2 Conveyor A1 to Conveyor B1 FH-003 0.000463 0.000069 0.0052 150,000 85.0 0.0100 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 FH-007 150,000 0.000463 85.0 0.000069 0.0052 144.2 0.0100 Conveyor E1 to Conveyor Y Conveyor Y to Conveyor Z FH-008a 144.2 150,000 0.000463 0.000463 0.0668 0.0347 0.0 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 PET-1 144.2 150,000 0.000463 90.0 0.000046 0.0067 0.0035 Pile to SlagTrucks 0 3639 0.1892 Totals 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** Material transfer rates based on 8 hrs/dy, 5 dys/wk, and 26 wks/yr operation. Control Efficiencies: Side Enclosure (25%), Enclosure (85%), Treated With Dust Suppressant (90%). DATA CONTROL Data Collected by: 6/04 S. Castro Date: Evaluated by: T. Davis Date: 6/04

T. Davis

Data Entered by:

6/04

Date:

EMISSIO	N INVEN	ITORY I	VORKS	HEET		-	SLAG-02
Tampa E	lectric Con	npany - Big	g Bend Sta	ition			Slag Trucks
	El	MISSION S	OURCE TY	/PE			
FUG	ITIVE PM -	TRUCK TF	RAFFIC ON	PAVED ROA	ADS		·
	FACILITY	AND SOL	IRCE DES	CRIPTION			
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						·
	EMISSIC	ON ESTIMA	ATION EQ	JATIONS	<u> </u>	E CONTROL	
PM Emission (lb/hr) = ((0.082 x [(Silt Loading Factor/2) ^{0.65}] x [(
PM Emission (ton/yr) = $((0.082 \times [(Silt Loading Factor/2)^{0.65}] \times (0.082 \times [(Silt Loading Factor/2)^{0.65}])$	((Truck Weight/3) ^{1.9]]} - 0.00047) >	(1-("Wet" Days	/1,460)) x Vehicle N	liles Traveled (V	MT)/yr x (1 ton/2,000	lb)
Source: Section 13.2.1, AP-42, November 2003.			_	-			
Terror Large Control (1995) who we like	PUT DATA	AND EMIS	SIONS CA	LCULATION	S ************************************		
Controlled Silt Loading Factor: 0.97	g/m²	Mean Annua	l Number of "	Wet" Days:	100		
Operating Hours: 8	hr/dy	5	dy/wk	26	wk/yr		
Stag Shipped by Truck: 150,000	ton/yr	Truck Travel	Distance (on	e way):	1,600	ft	
Hourly Truck Count: 11	trucks/hr	Annual Truc	k Count:	11,538	trucks/yr		
	Source	Vehicle	e Miles	Vehicle	Control	Pote	ential PM
Truck Traffic Type	ID	Traveled		Weight	Efficiency	Emis	sion Rates
		(VMT/hr)	(VMT/yr)	(ton)	(%)	(lb/hr)	(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
					_		
					_		
							
-					_		
	so	URCES OF	INPUT D				
Parameter Parameter			•	Data So	urce	· 	
Controlled Silt Loading Factor					90% control eff	iciency, ECT, 200	3.
Mean Annual Number of "Wet" Days		1-2, Section 1:	3.2.1, AP-42,	November 2003.			
Vehicle Miles Traveled, VMT	TEC, 2004.						
uck Weights, ton TEC, 2004. ntrol Efficiency Estimated, ECT 2004.							
Control Efficiency	Estimated, E	:C1 2004.	•				
	NOT	ES AND O	BSERVAT	IONS		332 m 425	
			_				
		DATA C	ONTROL		en Silving Allering		
Data Collected by:	S. Castro		- <u></u>			Date:	5/04
Evaluated by:	T. Davis					Date:	5/04
Data Entered by:	T. Davis					Date:	5/04

### FUGITIVE PM10 - TRUCK TRAFFIC ON PAVED ROADS #### FUGITIVE PM10 - TRUCK TRAFFIC ON PAVED ROADS ###################################	EMISSIC	N INVEN	TORY W	VORKSI	HEET			SLAG-02
FUGITIVE PMs TRUCK TRAFFIC ON PAYED ROADS	Tampa	Electric Com	npany - Big	Bend Stat	ion			Slag Trucks
FUGITIVE PMs TRUCK TRAFFIC ON PAVED ROADS		EN	IISSION SC	URCE TY	PE .			tar tar a
Emission Source Description: Figulium PM ₁₂ . Translationing of Slag: Truck Traiffic on Paved Roads Emission Centrol Method(s)(D) No (s): Watering, as Necessary Emission Point ID: SLAG-32 EMISSION ESTIMATION EQUATIONS PM ₁₂ Emission (Buhn) = ((Co15 x ((Giit Loading Factor2) ²⁶) x ((Truck Weight/s)) = 0.00047) x (1-(Pwirt Dayor1, 460)) x Vehicle Miles Traveled (VMT) yr x (1 ton/2,000 lib) **PM ₂ Emission (Buhn) = ((Co15 x ((Giit Loading Factor2) ²⁶) x ((Truck Weight/s)) = 0.00047) x (1-(Pwirt Dayor1, 460)) x Vehicle Miles Traveled (VMT) yr x (1 ton/2,000 lib) **PM ₂ Emission (Buhn) = ((Co15 x ((Giit Loading Factor2) ²⁶) x ((Truck Weight/s)) = 0.00047) x (1-(Pwirt Dayor1, 460)) x Vehicle Miles Traveled (VMT) yr x (1 ton/2,000 lib) **PM ₂ Emission (Buhn) = ((Co15 x ((Giit Loading Factor2) ²⁶) x ((Truck Weight/s)) x ((Co15 x ((Giit Loading Factor2) x ((Truck Weight/s)) x ((Co15 x ((Giit Loading Factor3) x ((Truck Weight/s)) x ((Giit Loading Factor3) x ((Giit Loading								
Emission Control Method(s)/ID No.(s): Value rine, as Necessary Emission Point ID: SLAG-32 ***EMISSION ESTIMATION EQUATIONS*** **PMs_Emission (light) = ((0.016 x ((Siii Loading Factor(2) ¹⁶) x ((Truck Weight2)) ¹⁶ - 0.000x7) x (1 - ("Weir Days"1,450)) x Vehicle Miles Traveled (VMT) by: Vision (Miles) Traveled (VMT) by: Vehicle Miles Traveled (VMT) by: X (1 ton(2,000 its)) **Source: Section 13.2.1, AP-42, November 2003.** **PMs_Emission (light) = ((0.016 x ((Siii Loading Factor(2) ¹⁶) x ((Truck Weight2)) ¹⁶ - 0.000x7) x (1 - ("Weir Days"1,450)) x Vehicle Miles Traveled (VMT) by: X (1 ton(2,000 its)) **Source: Section 13.2.1, AP-42, November 2003.** **PMs_Emission (light) = ((0.016 x ((Siii Loading Factor(2) ¹⁶) x ((Truck Weight2)) ¹⁶ - 0.000x7) x (1 - ("Weir Days"1,450)) x Vehicle Miles Traveled (VMT) by: X (1 ton(2,000 its)) **PMs_Emission (light) = ((0.016 x ((Siii Loading Factor(2) ¹⁶) x ((Truck Weight2)) x (1 - (0.016 x ((Siii Loading Factor(2) ¹⁶) x ((Siii	The second of th	FACILITY	AND SOU	RCE DESC	RIPTION	1. 13 (1. #)		
Emission Point ID: SLAG-02	Emission Source Description:	Fugitive PM ₁₀ -	Transloading o	f Slag; Truck ⁻	Fraffic on Paved F	Roads		
### Emission (Pulm) = ((0.016 x [(Sill Loading Factor(2) ¹⁶) * [(Truck Weight2) * 1 - 0.0047) x (1 - ("Wel" Dayz1 ,460)) x Vehicle Miles Traveled (VMT) hir PMs, Emission (pulm) = (0.016 x [(Sill Loading Factor(2) ¹⁶) * ([Truck Weight2) * 10 - 0.0047) x (1 - ("Wel" Dayz1 ,460)) x Vehicle Miles Traveled (VMT) hir Traveled (VMT) hir X (1 ton/2,000 lb) #### Source: Section 13.2.1, AP-42, November 2003. #### Parameter #### Source: Section 13.2.1, AP-42, November 2003. #### Notes AND Observations and overall 90% control efficiency, ECT, 2003. #### Notes AND Observations and overall 90% control efficiency, ECT, 2003. #### Notes AND Observations	Emission Control Method(s)/ID No.(s):	Watering, As Ne	ecessary				_	
### Semission (Brhr) = ((0.016 x [(Sit Loading Fador2)****] x [(Truck Weighty)**** 0.00047) x (1 - (Twef Days1,460)) x valuide Miles Traveled (VMT)/yr x (1 tor 2.000 it) x (1 - (Twef Days1,460)) x valuide Miles Traveled (VMT)/yr x (1 tor 2.000 it) x (1 - (Twef Days1,460)) x valuide Miles Traveled (VMT)/yr x (1 tor 2.000 it) x (1 - (Twef Days1,460)) x valuide Miles Traveled (VMT)/yr x (1 tor 2.000 it) x (1 - (Twef Days1,460)) x valuide Miles Traveled (VMT)/yr x (1 tor 2.000 it) x (1 - (Twef Days1,460)) x valuide Miles Traveled (VMT)/yr x (1 tor 2.000 it) x (1 - (Twef Days1,460)) x valuide Miles Traveled (VMT)/yr x (1 tor 2.000 it) x (1 - (Twef Days1,460)) x valuide Miles Traveled (VMT)/yr x (1 tor 2.000 it) x (1 - (Twef Days1,460)) x valuide Miles Traveled (VMT)/yr x (1 tor 2.000 it) x (1 - (Twef Days1,460)) x valuide Miles Traveled (VMT)/yr x (1 tor 2.000 it) x (1 - (Twef Days1,460))								
PMus Emission (nonly) = ((0.016 x ((Sitt Loading Factor2) ²⁶⁰) x (Truck Weight2) ¹⁴⁰⁰ x 0.00047) x (14"Weft Dayy1,460)) x Vehicle Miles Traveled (VMT)yr x (1 ton/2,000 lb)		EMISSIC	ON ESTIMA	TION EQU	ATIONS	<u>. 13-5% -</u>		N 1 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Source Section 13.2.1, AP-42, November 2003 Source Section 13.2.1, AP-42, November 2003 Source Section 13.2.1, AP-42, November 2003 Source S								
Controlled Silt Loading Factor: 0.97 g/m² Mean Annual Number of "Wet" Days: 100	PM_{10} Emission (ton/yr) = ((0.016 x [(Silt Loading Factor/2) ^{0.65}]	x [(Truck Weight/3) ^{1.5)))} - 0.00047) ×	(1-("Wet" Days	s/1,460)) x Vehicle	Miles Traveled (V	MT)/yr x (1 ton/2,00	0 lb)
Controlled Silt Loading Factor: 0.97 9/m² Mean Annual Number of "Welt" Days: 100	Source: Section 13.2.1, AP-42, November 2003.							
Controlled Silt Loading Factor: 0.97 9/m² Mean Annual Number of "Welt" Days: 100		NPUT DATA	AND EMISS	SIONS CAL	CULATIONS	minima Telephone		
Siag Shipped by Truck							•	
Siag Shipped by Truck	-				•	wk/yr		
Source Vehicle Miles Vehicle Control Fotential PMiles Vehicle (Iohr) (Iohry)	·	ton/yr	Truck Travel	Distance (one	e way):	1,600	ft	
Truck Traffic Type	Hourly Truck Count: 11	trucks/hr	Annual Truc	k Count:	11,538	trucks/yr		
Truck Traffic Type								
(VMT/hr)		Source	Vehicle	e Miles	Vehicle	Control	Pote	ntia! PM ₁₀
Stag Trucks (Empty) SLAG-02a 3.362 3.497 13.0 90.0 0.281 0.5	Truck Traffic Type	ID	Traveled		Weight	Efficiency	Emis	sion Rates
Slag Trucks (Full) SLAG-02b 3.362 3,497 26.0 90.0 0.797 0.0			(VMT/hr)	(VMT/yr)	(ton)	(%)	(lb/hr)	(ton/yr)
Slag Trucks (Full) SLAG-02b 3.362 3,497 26.0 90.0 0.797 0.0			,					
SOURCES OF INPUT DATA Parameter Controlled Silt Loading Factor Based on factor for iron and steel production and overall 90% control efficiency, ECT, 2003. Mean Annual Number of "Net" Days Figure 13.2.1-2, Section 13.2.1, AP-42, November 2003. Vehicle Miles Traveled, VMT TEC, 2004. Control Efficiency Estimated, ECT 2004. NOTES AND OBSERVATIONS Date: 5/04 Evaluated by: T. Davis Date: 5/04							1	0.146
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 Date: 5/04 Evaluated by: T. Davis Date: 5/04	Slag Trucks (Full)	SLAG-02b	3.362	3,497	26.0	90.0	0.797	0.415
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 Date: 5/04 Evaluated by: T. Davis Date: 5/04						Totals	1 08	0.56
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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:*

- (2) To the best of my knowledge, any emission estimates reported or relied on in the still are true, accurate, and complete and are either based upon reasonable still are true, accurate, and complete and are either based upon reasonable not regulated for an emissions unit, based solely upon the materials, informations provided with this certification. (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
 - (2) To the best of my knowledge, any emission estimates reported or relied on in this Mechniques avitilable for calculating emissions or, for emission estimates of air pollutants into tregulated tokan emissions unit hand and an emissions unit hand an emission estimates of air pollutants. inot regulated for an emissions unit, based solely upon the materials, information and

* 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

